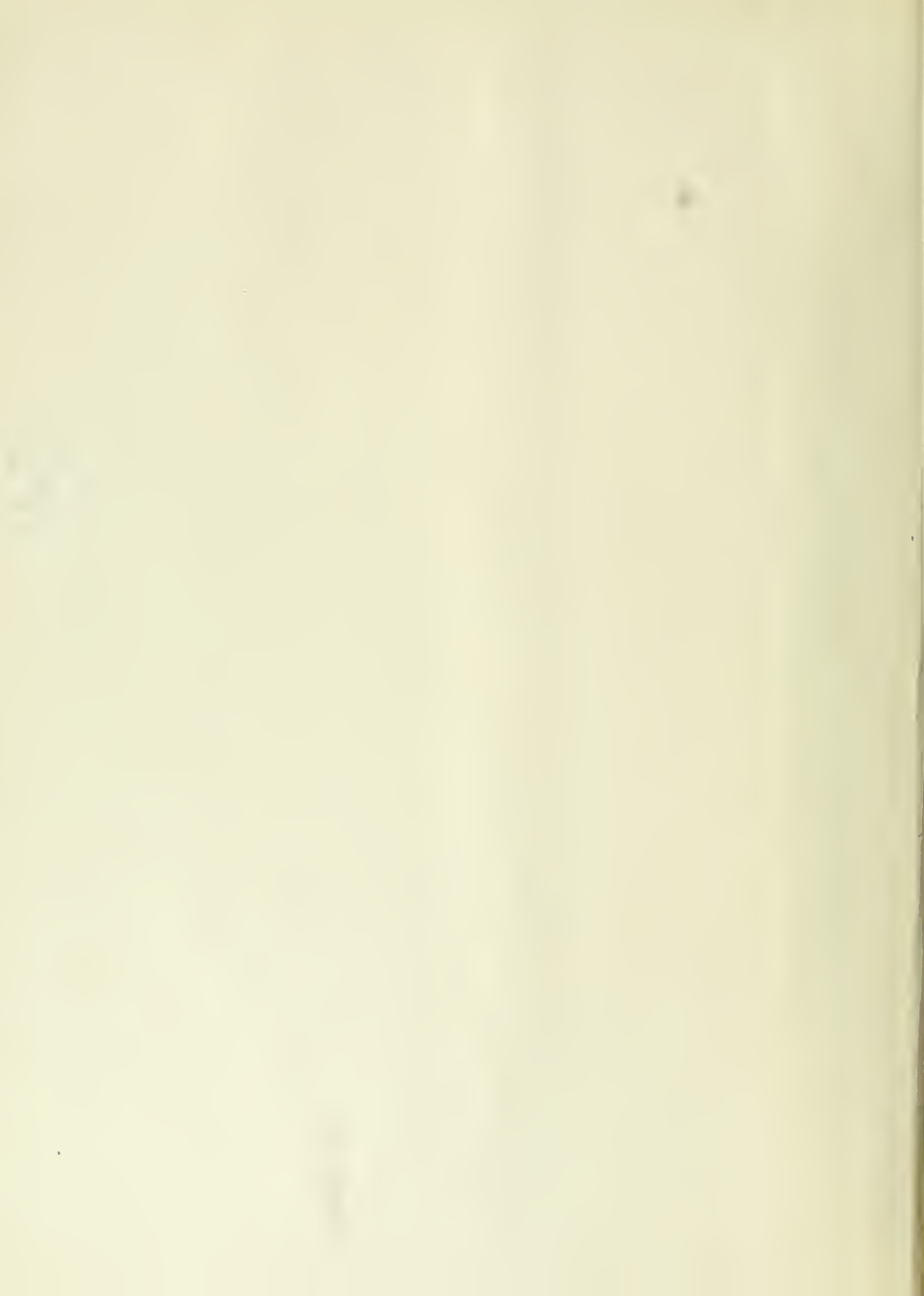


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KEY TO ABBREVIATIONS.

- A.—Abstract.
 Ad.—Address.
 B. R.—Book Review.
 C.—Correspondence.
 E.—Editorial.
 M. M. S.—Massachusetts Medical Society.
 Misc.—Miscellany.
 N. E. S. S.—New England Surgical Society.
 N.—Notice.
 N. 1.—News Item.
 O.—Ordinary.
 Or.—Original Article.
 M. N.—Medical Note.

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Original Articles.

ENDOMETRIAL HEMATOMAS OF THE OVARY.

By J. V. MEIGS, M.D., BOSTON.

IN the *Archives of Surgery* for September, 1921, Dr. John A. Sampson,¹ of Albany, N. Y., published a paper which is the foremost contribution to gynecology and gynecological pathology in recent years. The title of his paper is "Perforating Hemorrhagic (Chocolate) Cysts of the Ovary: Their Importance and Especially Their Relation to Pelvic Adenomas of Endometrial Type (Adenomyoma of the Uterus, Rectovaginal Septum, Sigmoid, etc.)." His paper explains very completely the so-called chocolate cysts, blood cysts, and hemorrhagic cysts so often found in pelvic operations. These cysts were usually considered to be of corpus luteum, follicular, or stromal origin.² Sampson has shown that some of these cysts are due to menstruating endometrial-like tissue in the ovary; that is to say, cysts which are found to be densely adherent, and which burst, permitting the escape of chocolate or tarry fluid when released, may contain endometrial-like tissue. In his article he reports that all of his cysts had at some time ruptured, and that on examination, after removal, the site of the perforation could always be found. (This last statement he no

longer holds to be true.) In most cases there is a small perforation, and dense adhesions are found in the pelvis, especially about the ovary. The endometrial-like tissue is found in various places in the ovary and in various forms, but usually it is near the perforation, and may be in the form of glands composed of columnar epithelium with an undifferentiated connective tissue stroma. Other specimens show a cuboidal, columnar, or cylindrical epithelium resting upon a thin layer of cellular tissue containing many blood vessels, and extravasated new and old blood. Still others have one of the above types of epithelium resting upon a thick layer of fibrous tissue, or even directly upon the ovarian tissue itself. The most important finding is the presence of hemorrhage, and especially the signs of old hemorrhage in a cyst wall lined with epithelium, which is not stratified. The sign of old hemorrhage is blood pigment (hemosiderin) chiefly in endothelial leucocytes, the presence of blood pigment, meaning that hemorrhage has occurred at some previous time. The blood remains in the tissue beneath the epithelium, because it cannot escape as does hemorrhage in the uterus or in the kidney, which have a passage to the outside of the body. The presence of blood pigment in the ovary is comparable to hemorrhage in the liver or spleen. The blood cannot escape, so it changes to blood pigment, and is later gathered up by endothe-

al leucocytes whose function it is to remove foreign bodies of this type. The diagnosis under the microscope is made by the presence of tissue definitely resembling endometrium, or by finding a cyst with a wall that is comparable to a dilated gland found in adeno-leiomyomata containing blood. Before the diagnosis can be accurately made the entire case must be considered, history, physical findings, operative findings, the appearance of the cyst, and its histology. Further, he has shown that these cysts are capable of implanting early adenomas of endometrial type on the peritoneum at the site of adhesions about the perforation. He has also found dark blue blebs at distant portions of the pelvic peritoneum, which histologically are cysts full of blood, and comparable to dilated glands in adeno-leiomyomata. Some of these small cysts grow and invade the tissue upon which they are implanted. Sampson believes, and we believe has proved, that adeno-leiomyomata of the Fallopian tube, of the round ligament, of the posterior wall of the uterus, of the posterior surface of the broad ligament, of the sigmoid, and also of the small intestine and appendix, are in some instances the results of implants from these cysts. The new adenoma may be due to direct extension from the cyst at its site of perforation, or to minute seed implants falling from the endometrial-like tissue at the time of perforation of the cyst. Thus a new explanation has been given for the presence of some of the various adeno-leiomyomata found throughout the pelvis in woman. His article gives an explanation for the many cases of severe pelvic inflammation, the etiology of which has been so obscure and puzzling heretofore.

CONFIRMATION OF SAMPSON'S ARTICLE.

Wishing to confirm the existence of these interesting hematomas we have searched through the records of the Free Hospital for Women, Brookline, Mass., and the records of Dr. William P. Graves of Boston. A careful study has also been made of the pathological records, and the specimens preserved in the hospital laboratory. It has been the custom of the hospital, and of Dr. Graves, since 1903, to preserve in formalin all gross specimens removed at operation; thus it has been possible to discover numerous cases which otherwise would have been lost. The original microscopic slides of the specimens were of help in but three or four instances. When the history, physical findings, operative findings, and description of the specimen suggested the presence of an hemorrhagic cyst of the ovary, the tissue was recut and new microscopic slides made.

The series of cases reported confirm Sampson's findings in a large degree. The cysts, themselves, grossly and histologically are as he describes them. They measure from 1 cm. to 12 cm. in diameter, but usually they are not

larger than 4 cm. A cyst 12 cm. in diameter was the only large one found. It was not suspected at operation, but the microscopic sections showed definite endometrial-like tissue in its walls. The location of these cysts is on the lateral surface or on the free border of the ovary. No cyst has been found on the median wall in this series. Perforation and adhesions about the ovary have been found in all cases seen since the publication of Sampson's article except one, this one being the large cyst described above, which had no perforation but was adherent. In the specimens that were recut the question of perforation was abandoned, because in all the cases the ovary had been sectioned in such a way as to make an accurate observation impossible. The contents of the cysts were typical in every case: dark, chocolate-colored or tarry fluid. In most of these cases the endometrial-like tissue could be recognized easily. In some it was necessary to make the diagnosis on the appearance of the cyst wall. These walls are characteristic of certain areas in nearly all endometrial hematomas of this type. There is a layer of cuboidal, columnar, or cylindrical epithelium resting upon a tissue composed of blood vessels and loose connective tissue, with both extravasated new and old blood in abundance. The diagnosis of this type of cyst is not difficult provided the history, physical findings, operative findings, and cyst contents coincide with Sampson's description.

The question of peritoneal implantation has been verified in but one case microscopically. In this case there was an adeno-leiomyoma of the posterior wall of the uterus near but not touching the adherent endometrial hematoma of the ovary. The tip of the appendix was adherent to the cyst and showed on section glands and stroma resembling endometrium in its walls. The condition is also well described in the operative notes in some of the older cases. In two cases there were adeno-leiomyomata in the left cornu of the uterus, and in one case undoubted adeno-leiomyomata in the sigmoid. The explanation of our inability to confirm him in more cases is that in only four cases was the nature of the cyst recognized at operation and of these but one showed implantation. In the other cases the cysts were not recognized so that no tissue of this kind was removed.

ETIOLOGY.

There are various theories explaining the etiology of these cysts and there is some support for them all. In his paper Sampson offers the following suggestions, among others:—

1. That the cysts may be endometrial from the beginning of their existence.
2. That certain parts of the germinal layer of epithelium of the ovary are able to undergo a metaplasia and take on the function and

histology of endometrium. In some of the microscopic slides of the cases reported in our paper there is a suggestion of this. That is, a short distance below the germinal layer of epithelium there may be a few so-called "gland inclusions," and directly below them the endometrial-like tissue. Serial sections were not made to show their continuity but the presence of gland inclusions near the endometrium raises the question as to whether this may not be the true etiology.

3. That "cell inclusions" in the ovary may be of endometrial origin and may reline an ovarian hematoma after its rupture and discharge of its contents. In this series there have been two cases seen lately in which the cysts were not lined with epithelium except at the site of perforation and a short distance into the cyst proper. The rest of the cyst strongly suggested one of corpus luteum origin.

4. On February 14, 1922, at the Peter Bent Brigham Hospital, Boston, Sampson suggested as another theory for the formation of these cysts, that they are due to the implantation of endometrium reaching the ovary by way of the Fallopian tube. He compared the location of the cysts, of the early adenomas of endometrial type found on the peritoneum, and that of pelvic adeno-leiomyomata with the location of inflammation in the pelvis due to the gonococcus. The gonococcus finds its way into the pelvis through the uterine cavity and the Fallopian tube. It attacks the tube, ovary and pelvic peritoneum. Endometrial hematomas are likewise found in the same locations. He has found small growths of endometrial-like tissue on the pelvic peritoneum without the presence of an endometrial hematoma in the ovary. Therefore, if the gonococcus can be carried from the cervix to the tubes, ovaries, and pelvis, why is not the same process possible for the small bits of endometrium? The ovary being in contact with the fimbriae of the tube would be the first structure to be touched by the endometrium after leaving the tube. Perhaps the ovary, in addition to being the stimulator of these cysts, may also act as an incubator and nourish the small bits of endometrium as they make their way into a ruptured follicle or cleft. Two cases mentioned by Dr. Frank B. Mallory, pathologist at the Boston City Hospital, seem to support the theory of transplantation of endometrium. There were cases in which adeno-leiomyomata were found in abdominal scars following normal Caesarean sections. Here it is possible that the endometrium was transplanted to the abdominal wall at the time of section of the uterus.

5. Janney³ attempts to account for the presence of endometrial-like tissue in the ovary embryologically. The material for his paper was obtained in the laboratory of the Free

Hospital for Women in Brookline, Mass. In this report of cases we have used the three specimens which he found and studied. In his work, done before the appearance of Sampson's paper, he suggests that uterine tissue in the ovary is much commoner than it was previously supposed to be. His theory suggests that uterine tissue found in the ovaries may be due to a developmental defect. The funnel, the earliest beginning of the Müllerian duct, may develop on the median instead of on the lateral side of the tubal area from which the ovary arises. Tissue may become mixed when these two areas are close together, and thus tissue capable of forming endometrium may be included in the ovary, to develop later in life. If this is so, the question has been raised as to why endometrial tissue is never found in the testicle. We believe the reason to be that the ovary is necessary to stimulate endometrial tissue to activity and that without an ovary the tissue shrinks and atrophies.

6. Russell⁴ says that the epithelium of the uterus, tubes, and germinal epithelium of the ovary are all derived embryologically from the same place and that therefore it ought to be possible for the same tissue to develop in any one of these organs.

A THEORY CONCERNING THEIR GROWTH.

Because these cysts cause dense adhesions, are the forerunners of adeno-leiomyomata, and are invasive, the questions will be asked, why are they not more serious? Why do they not cause more frequent serious damage? Sampson says that 10 per cent. of all women who have abdominal operations will show this pathology. We believe the explanation of this to be that the cysts develop very slowly. This is suggested by the fact that they usually do not appear until the patient is over 30 years of age; in other words, they are not found until 13 to 19 years of menstrual life have passed. We have found these cysts in younger women, but have not seen one in a woman younger than 24. This fact is surely suggestive of slow growth. The fact that they are made up of endometrial-like tissue and that they have the power of menstruating like normal endometrium is also suggestive of slow growth. For the cyst contents increase at every menstrual period, and as the menstrual life of woman is from 30 to 35 years, if the endometrial-like tissue and the cyst contents did not develop slowly they would soon be very large. The same reasoning holds true for the implantations from these cysts, as they are composed of the same type of tissue.

The cysts are influenced by the menstrual function, and in all cases signs of menstruation are present. In some cases the menstrual stage of the endometrial-like tissue is in the

same stage as the endometrium of the uterus, and in others it is not. The cysts are rarely found after the menopause; Sampson reported none. There are two cases in this series occurring after the menopause, and in one of them the endometrial-like tissue is very scarce and evidently atrophying. The cyst in this case is without doubt an endometrial hematoma because of the adhesions to the broad ligament, its site of perforation, its content of chocolate-like syrup, and its scanty but evident layer of columnar epithelium upon a wall that contains much old blood pigment in endothelial leucocytes. Here the cyst is retrogressing because, the menopause having occurred, ovarian stimulation is absent, and the endometrial-like tissue in it has atrophied as does the endometrium of the uterus.

We believe that as the endometrium of the uterus is governed by the ovarian secretion, so the endometrial-like tissue of these cysts is governed by it. If both ovaries are removed the catamenia cease and the activity of these cysts ceases also. They then stop growing and slowly atrophy. We do not know if they disappear altogether, but they become smaller and of no importance. Case No. 8946, reported below, is an example of the shrinking of the tumor after castration. Although the tumor could not be felt after two years, it was in all probability present microscopically.

QUESTION OF STERILITY.

Why are the cysts more common in nulliparous than in parous women? The same laws that govern the ovary and uterus govern these cysts also. Women who bear children usually marry before 30, the age at which these cysts are first found. If the cyst is bilateral, or has perforated and become adherent, causing pelvic adhesions and pulling the uterus into retroversion or retroflexion, the probability of pregnancy is slight. Provided the cyst has progressed to any extent the woman married after 30 will often be sterile. If, on the other hand, there is a microscopically small or non-adherent cyst present, and the young woman marries and has a child, the cyst may atrophy and perhaps even disappear in the stage of lactation atrophy which the genital tract frequently undergoes during the nursing period.* If it disappears it will not return, but if it has atrophied and is smaller it has lost many of its remaining menstrual periods during the time of pregnancy and nursing, and will have to start to grow again at a much later period of life than that at which it normally should com-

mence. This would tend to keep its size very small, and each succeeding pregnancy and nursing period would repeat the process of atrophy. In connection with this it is a fact that the cysts are commoner in women who have borne few children than in those who have borne many. Inasmuch as the percentage of multiparae operated upon is greater than that of childless women, or primiparae, this theory is further supported. Otherwise, if these cysts are likely to occur in all women, more of them should be found in parous women.

The above theories of slow growth and the reasons for the cysts being prevalent in nulliparae and rare in multiparae are not contradicted by any of the theories of the possible etiology of the cysts and the derivation of the endometrial-like tissue. It would be interesting to note in the histories of these cases whether the women who have children and who also have had an endometrial hematoma did or did not nurse their children. Unfortunately this fact is not stated in our histories.

CLINICAL STATISTICS.

In this series of 16 cases it is interesting to consider a few statistics. Fourteen women were married and two single. Of the married women, five had children and nine did not. One had five children, two had two, and two had one child. This is consistent with what Sampson writes concerning the frequency of sterility.

There were five patients in the 20 to 30 decade, eight in the 30 to 45 period, and three over 45, two of whom had had the menopause. These figures are consistent, only two cases being below 25 and most of them over 30. It is true, therefore, that women usually have from 13 to 19 years of menstrual life before the presence of the cyst becomes known.

The histories given by these patients are not always of diagnostic value, although in Sampson's series certain features, such as acquired dysmenorrhea, and constipation, worse at the menstrual period, were frequently present. The histories and the physical findings taken together should suggest the presence of an endometrial hematoma. Five of our patients complained of dysmenorrhea, one of acquired dysmenorrhea, four of menorrhagia of recent origin, and six of indefinite abdominal pain. Two patients had palpable tumors, and one complained of sterility. One of the cases with a palpable tumor had a malignant papillary cyst adenoma of the opposite ovary from that in which the endometrial hematoma was located, and the other had an endometrial hematoma of the ovary that was palpable. One case noticed increasing pressure in the rectum, and operation showed a cyst impacted in the pelvis behind a retroverted uterus. Indefinite lower

*"Occasionally, in women who suckle their children, the uterus may undergo excessive involution, becoming smaller than in the virgin state. . . . It is probable that the cessation of menstruation, which is usually observed during lactation, should be attributed to this form of atrophy. . . . In some instances the atrophy may persist after weaning and become permanent, the uterine cavity sometimes measuring only a few centimeters in length."
—"Obstetrics," Williams.

abdominal pain, dysmenorrhea and menorrhagia were the most common symptoms in this series.

The catamenial history is of some importance. Eight cases had normal and regular periods; four flowed more than normal at their periods. One case nearing the menopause flowed irregularly every three to six months, while two others had had the change of life. One other case was regular every six weeks.

We feel that although the histories are important, they are not suggestive, except in very few cases, without the presence of the physical findings and pelvic examination. All of the cases were examined by Dr. W. P. Graves, and the results of his examinations are tabulated as follows:

Retroversion or retroflexion with a palpable mass	6
Retroversion or retroflexion with adhesions	2
Retroflexion	1
Anteflexion with lack of mobility	1
Normal position of uterus with mass in left cornu	1
Normal position (to have repair of umbilical hernia)	1
Pelvic inflammation	1
Abdominal tumor	1
Fibroid	1
Atrophied uterus (to have dilatation and curettage for diagnosis)	1

In this series, then, all examined by one surgeon, typical findings such as retroversion, or retroflexion with a mass or adhesions, and one with anteflexion with lack of mobility, were found in nine cases. The results of these examinations, coupled with the histories, should at once suggest the probable presence of an endometrial hematoma of the ovary, if gonorrhea has first been ruled out. Since the appearance of Sampson's article, the case diagnosed as pelvic inflammation would probably suggest a case of this type, if there were no history of gonorrhea. We therefore think the diagnosis should be made in about 50 per cent. of the cases, but doubt if it could be in a higher per cent.

TREATMENT.

The operative procedures in the four cases recognized at the operation as hematomas of the ovary were as follows: In the first case the right ovary was removed after the adhesions were broken up, but no sign of implants on the peritoneum were found, although carefully looked for. The second case was of the same nature and the left ovary was removed. The other ovary was normal and no implantations were found. In the third case, a supravaginal hysterectomy, with coring out of the cervix, was performed for adenocarcinoma of

the fundus, and both ovaries removed. The right ovary contained an endometrial hematoma and no peritoneal implants were found. In the fourth case, the right ovary was removed, and also a small leiomyoma and the appendix. Implantation was found in the leiomyoma and appendix but was not recognized as such at operation. The operation should depend upon the extent of the disease and the question of peritoneal adenomas of endometrial type. If the cyst and all the suggestive areas in the peritoneum cannot be removed, a supravaginal hysterectomy with bilateral salpingo-oophorectomy should be done. For if ovarian tissue is left behind, the endometrial tissue will continue to be stimulated and will grow. If, however, all the endometrial tissue, including the cyst, can be removed, or if there are no peritoneal or other implantations, we believe it is best to resect the cystic ovary, if possible; or, if not, remove it, and leave the patient her other genital organs. For if all the endometrial tissue can be removed there will be nothing left for the ovary to stimulate, and the patient should be cured. Conservatism should prevail if all the endometrial tissue can be removed, for the growth is probably very slow and seldom endangers life. If, however, all the endometrial-like tissue cannot be removed, the operator should perform the radical operation, for if it is not done the patient will not be cured. If the patient desires children, and the disease has not made pregnancy impossible, we believe the operator should err on the conservative side, for the small adenomas are slow growing, and if pregnancy occurs the growth will in all probability be checked, or at least retarded. If pregnancy does not occur, another operation can be done later, and a cure assured the patient by bilateral oophorectomy. In Case No. 9118, complaining of sterility, a conservative operation was performed, although both ovaries contained ovarian hematomata. The ovaries were densely adherent deep in the pelvis and the uterus in retroversion. This patient became pregnant five months after the operation.

Five supravaginal hysterectomies with bilateral salpingo-oophorectomy were performed in nine cases before the present knowledge of these cysts. In the four other cases, the uterus and ovarian tissue were left behind, an oophorectomy, or a resection of the ovary, was done. One of the cases in which evidently some of the healthy part of the cystic ovary was transplanted into the uterine cornua, now, after 14 months, has "adhesions" about the left ovary and posterior wall of the uterus. The condition is not considered serious enough to warrant reoperation. The other cases have not been heard from.

The prognosis in the radical operative pro-

cedure is excellent, for with the removal of the ovaries the growth stops. In the conservative procedures we believe the prognosis to be good also. If the patient becomes pregnant the prognosis is very good, and if not, it is questionable whether the small amount of endometrial-like tissue left will grow fast enough to cause symptoms.

In every case there were adhesions present, including in all the sigmoid, rectum, round ligaments, posterior wall of the uterus, posterior surface of the broad ligaments. In each case the ovary was adherent. The disease was bilateral three times; on the right side eight times; on the left, five. All of the ovarian cysts contained dark, chocolate, tarry fluid.

The histories, physical findings, operative findings, descriptions of the specimen, early pathological report, and later pathological report will be found in the 16 case reports that follow. In all these case reports supravaginal hysterectomy includes bilateral salpingo-oophorectomy, which is performed as part of the routine in hysterectomies at the Free Hospital for Women.

In nearly every case the diagnosis of endometrial hematoma of the ovary was confirmed by Dr. Frank B. Mallory, pathologist to the Boston City Hospital.

February 26, 1909, No. 2017, Mrs. M. K., age, 41; children, none; miscarriages, none. Menstruation, which began when the patient was twelve, was regular until the past two years. Since then it has occurred every two to three weeks, and there was no period in January. Later a long walk and hot bath resulted in a severe attack of flowing with the passage of clots, which necessitated rest in bed.

Examination, February 28, 1909: Uterus retroflexed and drawn back in pelvis. Indefinite, not very tender mass felt behind uterus.

Operation, March 4, 1909, by Dr. W. P. Graves. Supravaginal hysterectomy. Median incision. Pelvic structures bound by adhesions which were freed with finger. Hematoma of the right ovary ruptured. Adhesions between sigmoid and left round ligament freed. Both ovaries and tubes so involved that they were removed with the uterus. Sigmoid covered with adhesions in the cul-de-sac. Discharge examination, March 23, 1909: Negative.

PATHOLOGICAL REPORT.

Macroscopic Examination: Specimen consists of uterus with tubes and ovaries attached, vermiform appendix, and a small myoma. There are adhesions about the fundus especially in the posterior surface and about the tubes and ovaries. Both ovaries are much enlarged and cystic. Fimbriated ends of both tubes are closed. On opening the uterus the walls seem slightly hypertrophied. The endometrium is

about 2 mm. in depth, but there are no intrauterine growths or polypi. Both tubes and ovaries are densely adherent and bound into one mass. The left tube is dilated and contains clear straw-colored fluid. Its walls are thick, forming a true hydrosalpinx.

Microscopic Examination: Fundus shows normal wall with marked hypertrophy of the endometrium. Tube is much dilated with flattened and atrophied villi and rather thin muscular walls. Ovary shows chronic fibrous thickening and several cystic follicles. The other ovary shows the same condition.

Pathological Diagnosis: Hypertrophy of endometrium; bilateral cystic oöphoritis; hydrosalpinx.

The pelvic examination and operative findings in this case are typical, and the gross specimens suggestive. The microscopic slides show endometrial-like tissue in both ovaries. In one there are a few glands and much columnar epithelium upon vascular walls. Hemorrhage is both fresh and old. Another slide shows an area of endometrial-like tissue with cyst wall in connection. The endometrial-like tissue is perfect, and by far the best specimen we have seen. This piece of endometrial-like tissue measures 2.5 cm. x 2 cm. and contains many small tubular glands surrounded by stroma. Without study of the whole section, the endometrial-like tissue closely resembles a section from the uterine mucosa.

April 14, 1913, No. 4136, Mrs. B. W., age, 48; children, five; miscarriages, none. For the past year the patient has "felt womb coming outside," and has had a dragging down feeling with sacral backache. The menopause occurred nine months ago. There had previously been five normal labors.

Examination, April 14, 1913, showed separation of the recti muscles; atrophy of the external genitals; cystocele; lacerated cervix and perineum, with some prolapse of uterus.

Operation, April 16, 1913, by Dr. W. P. Graves. Dilatation and ennetage; trachelorrhaphy; anterior colporrhaphy; perineorrhaphy; supravaginal hysterectomy. Median suprapubic incision made. Adhesions found on back of the uterus and low down in the pelvis. The latter were separated. Tubes and ovaries normal. Discharge examination, June 6, 1913: Negative.

PATHOLOGICAL REPORT.

Microscopic Examination: Specimen consists of a uterus, with both tubes and both ovaries, and a piece of cervical tissue. Uterus is a supravaginal hysterectomy and measures 5 cm. x 6 cm. No adhesions seen. Right tube is 5½ cm. long, very tortuous, and shows no adhesions. Right ovary is 2½ cm. x 1 cm. It shows nothing remarkable. Left tube is 5 cm. long. Left ovary measures 3 cm. x 2 cm. It

has many adhesions on it and contains a few cysts.

Microscopical Report: One ovary shows a good deal of connective tissue in the outer layer of the cortex. The other ovary shows the same.

Pathological Diagnosis: Interval endometrium; chronic bilateral salpingitis; normal ovary; periovaritis; chronic cervicitis.

This is not a typical history because the patient had passed the menopause. The pelvic examination and the gross specimens are not suggestive. On the surface of the ovary is a piece of endometrial-like tissue 0.5 mm. x 1 mm. in diameter that is very suggestive of uterine endometrium. No cyst was found in connection with this tissue. The ovary is atrophied and the endometrial-like tissue does not appear to be active.

March 28, 1914, No. 4815, Mrs. G. C., age, 41; children, two; miscarriages, none. Patient has had backache and a dull ache in both lower quadrants for the last year. These are worse during menses which, for the past year, have been very irregular, with profuse bleeding, lasting six days to three weeks. There were two normal, full term pregnancies. Previous operations: Posterior gastro-enterostomy nine years ago.

Examination, March 30, 1914, showed large, anteverted uterus, with some lack of mobility; scar in posterior vaginal wall; lacerated cervix and perineum; cervical polyp.

Operation, March 31, 1914, by Dr. F. A. Pemberton. Excision of cervical polyp; dilatation; perineorrhaphy; coeliotomy; supravaginal hysterectomy. Uterus was forward. Adhesions about the adnexa on both sides were separated. Discharge examination, April 13, 1914, was negative.

PATHOLOGICAL REPORT.

Macroscopical Examination: Specimen consists of a cervical polyp, ennettings and a uterus with both tubes and ovaries. Uterus shows a supravaginal hysterectomy, and measures 6 cm. x 5 cm. Endometrium is 3 mm. thick, and smooth. There are no adhesions. Tubes and ovaries look normal. On section right ovary is found to consist of a cyst 3 cm. in diameter. There is no ovarian tissue left. Left ovary is small and seems to be atrophied. Sections taken of polyp, curettings, uterine wall, right tube, and left ovary.

Microscopic Examination: Left ovary shows in one place glandular tissue surrounded by connective tissue which looks like endometrium of the uterus. **Diagnosis:** Interval endometrium; gland hypertrophy; mucous polyp of the cervix; chronic salpingitis (bilateral); atrophy of left ovary; adenomyoma; retention cyst of right ovary.

This history and pelvic examination are not typical, nor is the gross specimen typical. Near

the surface of the left ovary is found a cyst about 1 mm. in diameter and about it a layer of definite, endometrial-like tissue with a good stroma, possibly connecting with a larger cyst. This fact could not be determined as the gross specimen was not available.

June 19, 1919, No. 8496, Mrs. B. F., age, 43; married seventeen years; children, none; miscarriages, none. In February the patient went to bed complaining of severe pain in the left side. Since then after each period she has had pain in abdomen and back lasting about a week. Menstruation regular; flows three days; always some pain.

Examination, June 19, 1919, found uterus in retroflexion, and a cyst of the left ovary the size of an apple.

Operation, June 21, 1919, by Dr. W. P. Graves. Supravaginal hysterectomy. Very adherent mass felt in the left side involving the rectum. Right tube and ovary normal. Intramural fibroid in the uterus. The mass, evidently a blood cyst of the ovary, was delivered with great difficulty on account of dense adhesions and cellulitis involving the peritoneum and extending to the rectum. Thickened nodules felt in the rectum were not touched. Left broad ligament badly mutilated in removing the mass because of the density of the adhesions.

Examination, November 1, 1919: Patient in excellent condition. Some induration in the left broad ligament, probably old hematoma.

August 3, 1921. Patient is well except that on two occasions she has had flow similar to menstruation. Examination shows pinkish discharge. There is a mass, the size of a lime and not tender, in the left side of the pelvis similar to that felt one month after operation. There is a question of a cyst of the remaining ovarian tissue, or of an adenomyoma following a chocolate cyst.

October 10, 1921. Patient feels fine. No return of bleeding. Examination shows the pelvis entirely clear with no sign of previous swelling.

PATHOLOGICAL REPORT.

Microscopical Examination: Specimen consists of a uterus with both tubes and ovaries. Uterus is 6 cm. x 5 cm. x 3 cm. Endometrium is 3 mm. thick. There are three small, intramural fibroids. One ovary is normal. Part of other ovary shows a few adhesions on the outside and a collapsed cyst. Sections taken of the uterine wall, both tubes and ovaries.

Microscopical Examination: One ovary shows the wall of a simple cyst with adhesions on the surface.

Diagnosis: Interval endometrium; gland hypertrophy; normal tubes; normal ovary; cystic degeneration of the ovary with perioöphoritis; multiple fibroids.

The history and physical findings are typical. The operation revealed an endometrial

hematoma of the left ovary; a probable implantation in the left broad ligament; and a probable adeno-leiomyoma in the rectum. The gross specimens were not recognizable. A tumor of the left cornu of the uterus was sectioned. On re-examination these slides showed endometrial-like glands in small areas in the left ovary with characteristic stroma, much old blood, and an adeno-leiomyomata of the left uterine cornu.

The subsequent history shows a shrinking of the rectal tumors, and a bleeding possibly from a small remaining piece of endometrium or from an adeno-leiomyoma in the cervix, stimulated by small bits of ovary that could not be removed. In this case we believe Sampson's theory of implantation of adeno-leiomyomata is supported very well.

January 2, 1920, No. 8935, Mrs. F. W. F., age, 28; children, one; miscarriages, none. For some time the patient has had a backache and a sense of pressure against the rectum followed by a rather sharp attack of pain on November 22, 1919. Menstruation, regular; flows five days; last period December 13, 1919.

Examination showed very marked retroflexion and some prolapse of a large, congested uterus, which pressed on the rectum. There was a small protuberance on the back of the uterus, and a long, slightly torn, cystic cervix.

Operation, January 31, 1920, by Dr. W. P. Graves. Anterior colporrhaphy; perineorrhaphy; coeliotomy; right salpingo-oophorectomy; anterior fixation of round ligaments. Cystic mass in the posterior cul-de-sac felt much larger than at previous examination, and appeared to be adherent. Coeliotomy; Median incision. Uterus large, soft and retroverted. Adherent cyst of right ovary impacted in the pelvis. Adhesions released. Cyst found to be partly necrotic.

PATHOLOGICAL REPORT.

Microscopical Examination: Specimen consists of an ovarian cyst with tube attached, and appendix. Cyst measures 7 x 6 x 3.5 cm. and is filled with a chocolate colored material. Wall is thin and smooth on outer side; inner surface is studded with small papillary projections. Sections taken from tube, appendix, and cyst wall.

Microscopical Examination: Tube normal. Appendix normal. Cyst wall is that of a papillary serous cyst adenoma.

Diagnosis: Papillary serous cyst adenoma; normal tube; normal appendix.

Typical history coupled with a typical pelvic examination. The operative findings and the description of the gross specimens are typical except for the papillary projections. The new slides in this case show a cyst wall, lined with endometrial-like glands, in various shapes and sizes, and a definite stroma. There is both old

and new blood present. The ovary is active. In other sections a papillary serous cyst adenoma is shown. This is a very good specimen of endometrial hematoma of the ovary.

March 18, 1920, No. 9118, Mrs. C. Y., age, 25; married two years; children, none; miscarriages, none. Chief complaint: Sterility. Also has pains in the waist line and in the rectum. Has had diarrhoea on and off for a year. Menstruation: Irregular, and painful, before marriage.

Examination, March 18, 1920: Retroverted uterus, adherent to rectum.

Operation, April 29, 1920, by Dr. W. P. Graves. Dilatation; appendectomy; resection of both ovaries; anterior fixation of round ligaments. **Ether examination:** Uterus retroverted and adherent. Coeliotomy; both ovaries cystic and both adherent deep in pelvis. Cysts, broken in releasing the adhesions with escape of dark, bloody fluid, were probably corpus luteum cysts. Necrotic portions of the cysts trimmed off and wound closed.

June 11, 1920. Patient still complains of pain similar to that felt before operation in the left flank and back, but not as constant. Sept., 1920, patient pregnant.

PATHOLOGICAL REPORT.

Macroscopical Examination: Specimen consists of an appendix and ovarian tissue. Ovarian tissue shows wall of a cyst with smooth lining. Section taken.

Microscopical Examination: Ovarian cyst wall is lined with a single layer of low cells. Tissue beneath is full of fresh blood and blood pigment. The cells are of the shape that suggest lutein cells.

Diagnosis: Corpus luteum blood cyst; normal appendix.

The history and pelvic examination should at once suggest the presence of an endometrial hematoma of the ovary. The description of the operation further confirms its presence. The new slides made of the tissue show a layer of columnar epithelium resting upon a very thin vascular layer in which there is both old and new blood, this in turn resting upon fibrous tissue. This is a cyst wall and in places it is comparable to the wall of a hematoma in an adeno-leiomyoma.

December 16, 1920, No. 9414, Mrs. C. K., age, 36; children, two; miscarriages, none. Chief complaint: Bearing down sensation in the lower abdomen. Menstruation has been accompanied by marked dysmenorrhea with hemorrhages since April.

Examination, December 17, 1920: Relaxed vagina; rectocele; uterus in complete retroversion flexion, with a question of fibroid in the wall.

Operation, December 21, 1920, by Dr. W. P. Graves. Dilatation and curettage; anterior col-

porrhaphy; perineorrhaphy; supravaginal hysterectomy; coeliotomy. Uterus found to be retroverted and adherent.

Discharge Examination, January 2, 1921: Negative.

PATHOLOGICAL REPORT.

Macroscopical Examination: Specimen consists of a uterus with both tubes and ovaries attached. The tubes and ovaries are firmly adherent to the posterior wall of the uterus. Right tube and ovary form a mass 5 x 3 cm. The ends of the tubes are closed. Tube dilated and contains chocolate colored mucous. Ovary is normal in the gross. Left tube and ovary form a mass 5x3 cm. and this mass consists, as do the other adnexa, of a thin-walled and dilated tube containing chocolate colored material, with a normal appearing ovary that contains a corpus luteum cyst. Uterus is not remarkable except for adhesions.

Diagnosis: Gland hypertrophy of the endometrium; salpingitis isthmica nodosa; corpus luteum cyst (left); peri-oöphoritis (right); hemato salpinx (bilateral); normal appendix.

Increasing dysmenorrhea and irregular flowing with menorrhagia, together with the pelvic examination are typical. The operative findings without the description of the adnexa are not typical. The tubes seem to be the part involved in the description of the gross, but microscopically the ovaries are also involved. The salpingitis isthmica nodosa on recutting shows an adeno-leiomyoma of the left cornu. The new slides show a hemato salpinx (bilateral) with glands in the wall of the tube. The left ovary shows a corpus luteum cyst. In the ovary, there is an area of endometrial-like tissue with stroma.

December 27, 1920, No. 9432, Mrs. M. B. H., age, 26; married two and one-half years; children, none; miscarriages, none. For two years, every two or three weeks, the patient has had a dull, bearing down pain in the left lower quadrant, lasting twelve hours. This pain does not accompany catamenia, and never occurs in the right side. Patient is anxious for children. Menstruation began at fifteen and has been regular every six weeks. Previous operations: Appendectomy six years ago.

Examination, December 23, 1920: Deep abdominal scar; uterus retroverted; adhesions about left ovary.

Operation, December 28, 1920, by Dr. W. P. Graves. Dilatation of the cervix; excision of ovarian cysts; implantation of ovarian tissue; anterior fixation of the round ligaments; bilateral oöphorectomy; coeliotomy; bilateral hydrosalpinx; bilateral salpingitis isthmica nodosa. Both tubes and ovaries adherent. Right ovary contained a fairly large corpus luteum cyst which was ruptured in freeing the ovary, with the escape of a large amount of thick black

fluid. Resection of both ovaries. Implantation of ovarian tissue. Sections of left ovary previously removed placed in each cornu of the uterus.

Discharge Examination, January 10, 1921: Wound healed; uterus in good position; some induration on the left.

Examination, February 24, 1921: Adhesions around left ovary to posterior wall of the uterus.

PATHOLOGICAL REPORT.

Microscopical Examination: Specimen consists of parts of both ovaries and both tubes. Fimbriated end of tube is attached to the ovary. Wall of tube is thickened near uterine end. One piece of ovary consists chiefly of a cyst filled with dark brownish coagulum. Lining of the cyst wall is smooth. Other ovary contains many small cysts filled with clear fluid. Sections taken of both ovaries and tubes.

Microscopical Examination: One ovary shows the wall of a follicular retention cyst. Other ovary shows adhesions and small cysts.

Diagnosis: Peri-oöphoritis; follicular retention cyst; sub-acute salpingitis.

This is not a typical history, but it is suggestive when considered with the pelvic examination. The operative findings show involvement of all pelvic structures. The description of the right ovary helps confirm the diagnosis. The sections of the tubes show a bilateral hydrosalpinx. A slide of the right ovary shows it to be active with an area of endometrial-like tissue near the surface, composed of a few glands and tissue typical of endometrial stroma, containing new and old blood. The corpus luteum described in the operative findings was not found microscopically.

January 10, 1921, No. 9460, Mrs. S. M., age, 30; married eleven years; children none; miscarriages, none. In December menstruation started normally but has kept on constantly since. The flow varies very much in severity. No clots or pain. Otherwise patient feels well.

Examination, January 6, 1921: Mass attached to right horn of uterus pressing it forward was thought to be a fibroid.

Operation, January 11, 1921, by Dr. W. P. Graves. Supravaginal hysterectomy; coeliotomy; bilateral hydrosalpinx. Tubes were adherent in the posterior cul-de-sac. Fibroid found in the posterior wall of the uterus near internal os. Tubes freed from adhesions.

Discharge Examination, January 20, 1921: Negative.

PATHOLOGICAL REPORT.

Microscopical Examination: Specimen consists of a fibroid uterus with both tubes and ovaries attached. Uterus is covered with firm, fibrous adhesions. There are three intramural

fibroids. Both tubes are greatly distended and filled with clear fluid. Left ovary is filled with a dark brown coagulum. Right ovary is filled with clear fluid.

Microscopical Examination: Endometrium is of the interval type.

Pathological Diagnosis: Interval endometrium; hydrosalpinx (bilateral); cystic degeneration of the ovaries; multiple fibroids; obliterated appendix.

Operative findings and pelvic examination are not typical. The left ovary shows a cyst wall with an irregular, wavy layer of columnar epithelium resting on a definite stroma with both new and old blood in it. The cyst cavity is full of old blood.

October 11, 1921, No. 9891, Mrs. H. F., age, 24. Last winter patient had a "dropping feeling" in pelvis. On July 4th had severe pains in the lower abdomen which have continued off and on until the present time. This pain is worse during menstruation, which is regular. Previous operation: Appendectomy.

Examination, October 11, 1921. Chronic pelvic inflammation. Tender mass in posterior cul-de-sac.

Operation, October 25, 1921, by Dr. W. P. Graves. Left oöphorectomy; anterior fixation of round ligaments; coeliotomy. Uterus in the first degree of retroversion. Right tube and ovary normal. Left tube normal. Left ovary cystic and adherent to the posterior wall of the uterus and broad ligament. When the cyst was released it was found to be a chocolate cyst.

PATHOLOGICAL REPORT.

Macroscopical Examination: Specimen consists of an ovary which measures 4 cm. x 5 cm. x 3 cm. Ovary presents a cyst that is filled with chocolate-colored material. Cyst is multilocular. Larger cyst appears to have been ruptured at some previous time and is now covered with adhesions. Sections taken from the cyst wall and from adhesions.

Microscopical Examination: Sections show the wall of a corpus luteum cyst. This was thought to be a perforating hemorrhagic cyst (Sampson's cyst), but it could not be proved microscopically. Adhesions show no sign of endometrial-like tissue.

Pathological Diagnosis: Corpus luteum cyst.

Pain in the lower abdomen and a tender mass in the posterior cul-de-sac are typical, except for the possibility of salpingitis. The operative findings are typical and the diagnosis was made at operation. The macroscopic findings did not show the endometrial-like tissue which completely lined one of the smaller cysts until 15 or 16 slides had been made. No glands were found but a thin stroma under a layer of columnar epithelium was present.

Old and new blood was found in the stroma.

November 17, 1921, No. 9933, Mrs. J. C., age, 32; children, one; miscarriages, none. Patient complains of pain across lower abdomen which is worse during catamenia. Menstruation began when she was fifteen and has been regular.

Examination, October 3, 1921: Right kidney palpable; retroversion with moderate flexion of uterus; relaxation of vagina; question of prolapse of ovaries; question of adhesions.

Operation, November 22, 1921, by Dr. J. V. Meigs. Dilatation and curettage; trachelorrhaphy; perineorrhaphy; left oöphorectomy; appendectomy; anterior fixation of round ligaments. Adhesions in the pelvis and on posterior wall of uterus; left ovary adherent to posterior surface of the broad ligament. These adhesions were broken up. Left ovary was found to have a small perforation in its posterior surface, suggesting a possible hemorrhagic cyst that contains endometrium. There were no bluish areas on the broad ligament or on the posterior wall of the uterus.

Discharge Examination, December 8, 1921: Negative.

PATHOLOGICAL REPORT.

Macroscopical Examination: Specimen consists of an ovary which has a perforation on its lateral wall. There are two smaller areas on posterior surface with a small amount of dark bloody material coming from them. On section the ovary is found to contain a cyst filled with dark brown material. Cyst measures 1 cm. in diameter. Section taken through the whole ovary to show the area about the perforation.

Microscopical Examination: Section from the ovary shows a cyst lined with cuboidal epithelium with evidences of old blood in its walls. There is blood pigment in many endothelial leucocytes. About the perforation there are glands resembling endometrial glands with a small but definite amount of stroma about them. In some areas in the cyst there is an absence of epithelium and here the cyst wall consists of a fibrous tissue. At the distal portion of the ovary there are areas still more strongly suggestive of endometrium and its stroma. These areas do not seem to be connected in any way with the cyst. Diagnosis: Interval endometrium; chronic cervicitis; normal appendix; perforating hemorrhagic cyst of the ovary containing endometrium (Sampson's Cyst).

The history and pelvic examination are quite typical. At operation the diagnosis was made. No implants in the peritoneum were found. Section was made through the whole ovary to show the perforation. Gland inclusions in the slides were found very close to the endometrial tissue. Is it possible that the etiology of these cysts is as follows: Germinal epithelium, gland

cleft, gland inclusions, and lastly endometrial-like tissue? Occasionally, sections are very suggestive of it.

November 15, 1921, No. 9943, Mrs. K. MacL., age, 42; children, none; miscarriages, none. Since August the patient has noticed an abdominal tumor steadily increasing in size. Menstruation: Normal.

Examination, November 17, 1921: Abdominal tumor: question of a cyst of the ovary, or a fibroid; small vagina.

Operation, November 30, 1921, by Dr. W. P. Graves. Supravaginal hysterectomy; coeliotomy. A large, necrotic cyst of the left ovary was freed from adhesions and removed. The adhesions included rectum which was badly involved, but not blocked. Condition thought to be malignant. Cyst broken while being removed and abdomen flooded with fluid. Small chocolate cyst of the right ovary removed with uterus and the cyst. Seed metastases seen on the left broad ligament. Discharge Examination, December 15, 1921: Negative. Deep x-ray treatments advised.

Examination, January 26, 1922: Cervix well held up. Patient in good condition.

PATHOLOGICAL REPORT.

Macroscopical Examination: Specimen consists of a uterus with one tube and ovary attached and one tube and ovary separate. Separate ovary presents a collapsed cyst 15 cm. x 9 cm. x 9 cm. with a thick red wall. On the inside of the cyst is a friable mass measuring 5 cm. in its greatest diameter. The other tube and ovary form a mass 6 x 4 x 3 cm. The ovary contains a cyst. Tube is normal. Uterus is normal in size, but there is a small fibroid in its wall.

Microscopical Examination: One ovary shows the wall of a corpus luteum cyst and the other a malignant papillary cyst adenoma.

Pathological Diagnosis: Interval endometrium; endometrial polyp; normal tubes; corpus luteum cyst; malignant papillary cyst adenoma; leiomyoma.

History and pelvic examination are not typical. A malignant tumor of the left ovary and a small "chocolate cyst" of the right ovary were removed. No mention is made of the "chocolate cyst" in the gross description. This right ovary contains a collapsed cyst with a perforation on the surface. This cyst is lined with columnar epithelium, and has a vascular stroma which contains old and new blood. It is a very good example of endometrial hematoma in the ovary.

December 27, 1921, No. 9986, Mrs. A. E. P., age, 51; married twenty-one years; children, none; miscarriages: question of one. Patient complains of a bearing down sensation and pain in both sides. The abdomen feels heavy. Menstruation: Irregular; flows every three to six months.

Examination, December 27, 1921, showed tumor, probably fibroid of the uterus, and a small tumor in the vagina.

Operation, December 29, 1921, by Dr. F. A. Pemberton. Excision of fibroma from vagina; supravaginal hysterectomy; appendectomy; coeliotomy. Large fibroid found growing from the left cornu of the uterus. Right tube and ovary densely adherent in the right side of the posterior cul-de-sac. Discharge Examination, January 16, 1922: Negative.

PATHOLOGICAL REPORT.

Macroscopical Examination: Specimen consists of a uterus with both tubes and ovaries; also a small tumor of the vagina and appendix. Uterus contains multiple leiomyomata and measures 14 x 14 x 13 cm. Left tube and ovary appear to be normal. Right tube and ovary have a few adhesions to their surface. Ovary is cystic and contains bloody fluid.

Microscopical Report: Tube shows chronic salpingitis. Ovary is normal except for a few strands of connective tissue attached to the surface. The tumor from the vagina shows a fibroma.

Pathological Diagnosis: Gland hypertrophy of the endometrium; endometrial polyp; peri-oöphoritis; chronic salpingitis; multiple leiomyomata; fibroma from vagina; normal appendix.

There is no suggestion of this entity in either the history or pelvic examination. At operation the cyst, tube and ovary were very adherent and full of old blood. The possibility of endometrial hematoma was discussed at the operation but the age of patient ruled it out. The right ovary showed upon re-examination after cutting many sections, very definite endometrial tissue, stroma, and old blood. In the section is an early hematoma partly lined with endometrial-like epithelium with many gland inclusions about it.

January 9, 1922, No. 10014, Mrs. R. C., age, 36; married fourteen years; children, none; miscarriages, none. Patient complains of pains in back and right side of two-weeks' duration. A mass has been present in the right side of the abdomen for two years. Previous operations: cholecystectomy, 1903; appendectomy, 1904; lysis of adhesions, 1907; oöphorectomy, 1911; dilatation and curettage for retroversion, 1914; intestinal obstruction.

Examination, January 9, 1922, showed uterus in good position.

Operation, January 12, 1912, by Dr. Harold Baker. Dilatation and curettage; right oöphorectomy; cauterization of the cervix; repair of post-operative hernia; coeliotomy; large hernial sac opened. The pelvis was filled with dense adhesions. Right ovary was cystic and about the size of an orange. With considerable dif-

ficulty this cyst was dissected free from the other pelvic organs, which were all adherent.

Discharge Examination, February 2, 1922: Negative.

PATHOLOGICAL REPORT.

Macroscopical Examination: Specimen consists of a cyst of the ovary measuring 10 x 9 cm. Cyst is multilocular and contains dark brown fluid. It is covered with adhesions.

Microscopical Examination: This section shows the wall of a hemorrhagic cyst of the ovary. There is blood in the cyst and fresh and old blood in the cyst wall. The old blood is in the form of blood pigment and is being taken up by endothelial leucocytes. In one area there are numerous glands similar to uterine glands and surrounding these glands is a stroma similar to the stroma about the glands of the endometrium.

Pathological Diagnosis: Hemorrhagic cyst of the ovary containing endometrial tissue (Sampson's Cyst).

In this case the history, examination, and operative findings are all obscured by the many operations which the patient has had. The cyst the size of an orange was multilocular and very adherent, and full of dark brown fluid. The wall contained a few glands and stroma very much like endometrium. It is very probable that some of the previous operations were done for the same process which was unrecognized at the time. This case probably bears out Sampson's findings concerning peritoneal implants.

January 3, 1922, No. 10041, Mrs. E. S., age, 55; children, none; miscarriages, none. Catamenia ceased three years ago, and the patient was well until two months ago when she noticed a little, slightly-colored, non-odorous, watery discharge. There was no bright bleeding, and the patient feels perfectly well.

Examination showed an unruptured hymen, and a small, atrophied uterus.

Operation, January 7, 1922, by Dr. W. P. Graves. Ether examination: Uterus could not be felt and probably always had been infantile. Dilatation and curettage. Cervix dilated easily. Depth of uterus normal. Large amount of curettings obtained that were not characteristic.

Pathological Report: Adeno-carcinoma of the fundus uteri.

Operation, January 20, 1922, by Dr. W. P. Graves. Supravaginal hysterectomy and with coming out cervix. Coeliotomy. Long median incision made. Adhesions found in the posterior cul-de-sac. Right ovary cystic. In releasing adhesions the cyst was ruptured letting out a moderate amount of dense, black material. This was evidently a chocolate cyst.

PATHOLOGICAL REPORT.

Macroscopical Examination: Specimen consists of a uterus with both tubes and ovaries attached. In the right cornu of the uterus is an irregular growth, soft and friable. Left tube and ovary normal. Right tube normal. Right ovary measures $3\frac{1}{2}$ x $2\frac{1}{2}$ cm. and contains on posterior wall a perforation from which chocolate-colored material is oozing. On section presents a cyst measuring 3 cm. in diameter that appears to be an endometrial hematoma.

Microscopical Examination: Adeno-carcinoma of the fundus. The ovarian cyst wall shows a layer of fibrous tissue and loose cellular tissue with old blood pigment in endothelial leucocytes. There are a few traces of columnar epithelium lining cyst. Probably an atrophied endometrial hematoma.

History and pelvic examination are not typical, but the operative findings are suggestive. The cyst, and its contents, are typical. The microscopic slides show a thick fibrous layer full of old blood in pigment form in endothelial leucocytes. There is some columnar epithelium present which has been stripped from the wall. The cyst wall in this case is typical and with the small amount of epithelium present it has the appearance of an atrophying endometrial hematoma.

April 7, 1921, No. 10174, Mrs. W. A. McC., age 24, children, none; miscarriages, none. Has always had painful menstruation.

Examination April 7, 1921. Uterus in marked retroversion-flexion and apparently adherent.

March 6, 1922. Has had two severe attacks of pain, one Feb. 22 and one today.

Examination March 6, 1922. Tenderness in the lower abdomen especially on the right. There is a mass on the right which is tender. Temperature is 99.4

Operation March 14, 1922, by Dr. W. P. Graves. Right oophorectomy, appendectomy, myomectomy, anterior fixation of the round ligaments. Median incision. Chocolate cyst on the right, size of a small orange, adherent. Cyst ruptured when released. Ovary removed. Right tube, left ovary, and tube normal in appearance. The appendix had a short mesentery and was attached in the pelvis. Its tip was attached to the posterior wall and to the right broad ligament. Small myoma removed.

PATHOLOGICAL REPORT.

Macroscopical Examination: Specimen consists of a cyst of the ovary, 5 cm. in diameter, full of chocolate-colored material. Walls of the cyst are thick, there is a perforation 2 cm. in diameter on the posterior wall of the ovary. The cyst shows no adhesions except at the point of contact. Appendix is 8 cm. long and has ad-

hesions at its tip. There is a small tumor from the uterus 1 cm. in diameter.

Microscopic Examination: The wall of the ovarian cyst shows some active ovarian tissue and a cyst lining of columnar epithelium which runs above a very narrow strip of cellular tissue containing blood. In one area deep in the wall is a gland of endometrial type. Another section shows columnar epithelium resting upon tissue which suggests endometrial stroma and contains both old and new blood. The appendix is obliterated at the tip. In one area in the outer part of the wall there are two glands surrounded by a definite stroma that contains extravasated blood. This tissue resembles endometrium. Another section of the appendix shows a gland deep in the wall with stroma about it. The small tumor is a leiomyoma with two endometrial-like glands in its substance.

Pathological Diagnosis: Endometrial hematomas of the ovary; obliterated appendix with probable adeno-leiomyoma in its wall. Adeno-leiomyoma of the posterior wall of the uterus.

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THE SOCIAL HISTORY IN RELATION TO HEART PATIENTS.

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[From the Heart Clinic of the Boston Dispensary.]

In out-patient hospital work one is frequently impressed with the importance of the patient's history as collected by the Social Service Department. The value of such data and the assistance of the social workers has become increasingly evident to me since taking charge of an out-patient clinic for heart patients at the Boston Dispensary. It is common to find that the failure to obtain the expected degree of success in treatment is readily explainable after investigating the patient's home or business surroundings; in other instances the good result achieved would not have occurred without the assistance of the social worker assigned to the case.

The remarks apply with equal force to the work of the general practitioner. He usually does not have the assistance of a Social Service Department, but must himself be both physician and social worker. The experienced physi-

cian instinctively notes the environment of his patient and does not limit this attention to the strictly medical aspects of the case. The opportunity for this is, of course, more readily afforded when the patient is visited in his home, but at times the information is obtained only as a result of direct search similar to that employed in making the medical diagnosis. It is with the hope of emphasizing an important side of the treatment of heart patients that this paper is offered.

Perhaps this object can be most readily accomplished by citing a few case reports. The medical histories will be much abbreviated, while the social histories will be given somewhat more fully, conforming as nearly as possible to the words used by the social worker.

CASE 1. Boston Dispensary, No. 182829. Mary P., married, 42 years of age.

Past History. Good; no history of disease of etiological importance as regards the heart.

Present Illness. Symptoms 1½ years. Smothering sensation, dyspnea on exertion, weakness in the legs when walking.

Physical Examination. Cardiac impulse in the fifth space at anterior axillary line. At apex there is a rough systolic murmur masking the first sound, and a diminuendo diastolic murmur following the second sound. Heart rate 64, with frequent irregularities which disappear when the rate is accelerated by exercise.

Diagnosis. Rheumatic heart disease, premature beats, mitral stenosis and regurgitation.

Under observation for one year. Can exert but little. Heart rate 64 to 78; premature beats present at times.

Social History. Aged 42 years, born in Newfoundland, married and mother of six children, eldest 17 years, and youngest 6 years.

Mr. P., age 43, a laborer, with regular work. A man of quiet, even temper, with little to say in running the house. The children were husky and lively, showing affection for the mother.

The family lived in a single house of six rooms; two rooms on a floor, with toilet in the basement. This arrangement necessitated considerable stair climbing. The home was comfortably furnished. The rent \$16 per month; income of family \$40 per week.

Mrs. P. was a good housekeeper, strenuous and irritable, performing all the work in the home, including the washing and the bringing up of the coal from the cellar. She had no recreation. The day's work began at 5:30, when breakfast was prepared for her husband and son and two lunches taken to work, a second breakfast for the other children; a hearty noon meal and dinner at night. Besides the usual routine of her housework, she did much of the sewing for the family. She possessed a sewing machine.

After Mrs. P.'s second visit to the Heart Clinic, where she had received instructions in regulating her life, she asked the social service worker to call at her home and impress on Mr. P. the seriousness of her condition and the necessity for relief from housework. The visitor called and found the family at home. Mr. P. seemed interested after being told what the doctor had outlined for his wife's care. He looked much relieved, saying he was glad to know what ailed her because after each visit to the Dispensary she returned home as though she had a grudge against the family; why, he did not know. He agreed to relieve her and to make the children do the same.

The result of home supervision was as follows: The washing was sent out. The children brought the coal, did the sweeping and dishes, etc. An army cot was purchased and placed in the room leading from the kitchen where Mrs. P. could rest at intervals. Later, the family moved into a five-room flat to avoid stairs. While there have been relapses in the family's good intentions, a better understanding of Mrs. P.'s needs and moods has been established.

Comment. At first this patient did not seem to be getting along as well as was expected. The reason was obvious after the visit of the social worker, and benefit was then soon apparent.

The above case illustrates the importance of having the family understand the patient's condition. In many instances this should not be left to the patient.

CASE 2. Boston Dispensary, No. 196666. Mary H., 23 years, married. Sent in by district nurse for cardiac examination.

Past History. Rheumatism at eight; tonsillitis once. Last baby is two years old.

Present Illness. Dyspnea for five minutes on climbing one flight of stairs. Cough rare, tires easily, does all housework (scrubbing, etc.).

Physical Examination. Fairly well developed and poorly nourished. Slight cyanosis of lips and finger tips, latter cool. Heart: Impulse maximum in fifth space one finger's breadth outside left midclavicular line. Border of deep cardiac dulness, second to fifth space; convex to left. Pulmonic second sound accentuated. Systolic murmur with first sound at apex, very loud second sound, and a faint third heart sound followed by a diastolic roll diminishing and crescendo.

Diagnosis. Rheumatic heart disease, heart failure, mitral stenosis and regurgitation.

Social History. Referred by Heart Clinic, which wishes patient to have rest from housework. Advice has also been given that patient have teeth repaired and tonsillectomy, but Mrs. H. is not inclined to follow this counsel.

Report from Family Welfare Society. This Society has had dealing with Mr. H.'s parents over a number of years, and lately with the H.'s themselves. Both families have been very unsatisfactory. Mr. H.'s father has tuberculosis and should be at Mattapan, but has come home, and now is sleeping with his eldest grandchild. The grandmother was convicted in court as a common drunkard; Mr. H. deserted repeatedly. Mr. H. is not a rugged man, but is well as far as is known. He is very lazy; has been employed off and on by a furniture mover, who says he only calls on him when he can get no one else, and then has to send a man over to drag him out of bed to work. Mrs. H. was taken from her parents as a neglected child, and brought up in the Home for Destitute Catholic Children. She has only recently found her father again. He lives in the tenement over the H.'s. Mrs. H. appears to be afraid of her husband and will do nothing contrary to his wishes. She is probably hungry, and there is no doubt that she and the children need help, but no private society will aid, as Mr. H. refuses to work in the woodyard and apparently cannot get work elsewhere. The priest has been seen and declines to aid; he aided last year but will not again.

On reporting these facts to the Heart Clinic, the advice was given that we explain the wife's condition to the husband and appeal to him on the purely selfish grounds of the danger of losing his wife or having her as an invalid on his hands if he did not see to it that she followed the physician's advice. The family was referred to the Society for the Prevention of Cruelty to Children and the Family Welfare Society on the ground that the children were neglected.

Worker called on family, which lived on first floor of a very poor tenement, from which it was about to be evicted. Patient could only say that she felt worse since visiting the Boston Dispensary, because the doctor scared her by telling her that she had heart disease and because she was afraid the children were to be taken from her. Worker explained what the Heart Clinic had said to husband, telling him that she should do nothing that required exertion; should not wash floors, windows or clothes; should not lift the children, etc. Husband replied that for the past month, since he knew she had heart trouble, he had not allowed her to do any of these things, but had done them himself. Mrs. H. does not deny this statement. Worker suggests convalescent home, but Mrs. H. is unwilling to leave the children.

Comment. There is more to this social history, but enough has been given to show the unfavorable environment of the patient, and the lack of cooperation on the part of the latter. Without a decided change in both of these,

no great improvement in the medical condition is to be expected.

CASE 3. Boston Dispensary, No. 192738. Rose S., 32 years, married. Referred with the diagnosis: "Myocarditis."

Past History. Influenza three years ago. Attacks similar to the present, when in high school eleven years ago, and three years ago when first baby was born.

Present Illness. Palpitation, with faintness, during the past two years. The duration is about ten minutes, and the cessation is gradual. Sometimes has the sensation as if the heart turned over. One flight of stairs causes no shortness of breath if taken at an ordinary pace. Occasionally has pains, mostly occurring at the time of the menses. The attacks or symptoms are usually associated with nervous causes or excitement. Feels she has had much trouble and reason to be nervous.

Physical Examination. Fairly well developed and somewhat thin (weight 107 pounds). Heart: Impulse palpable in fifth space in left midclavicular line; no enlargement to percussion. At the apex there is a faint systolic murmur with the first sound; no diastolic murmur appreciated. Pulmonic second sound is louder than aortic second but is not accentuated. Considerable respiratory arrhythmia; heart rate about 82.

Opinion. "No evidence of true heart disease. Proper term probably 'irritable heart' (i.e., normal heart in a nervous person). Environmental troubles could cause all these symptoms."

Social History. Children: Frederick, 11½ years; Eleanor, 8½, and Pearl, 2½. Both little girls appear lovable and fairly healthy; normal births. Birth of boy was normal, but mother was under quite a nervous strain during pregnancy. Husband's peculiarities developed shortly after she was married; was abusive to her during the first pregnancy. He continued this abuse through ensuing years, and showed terrific temper, especially toward the boy, whom he frequently struck. Husband was committed to Psychopathic Hospital in 1916, sent to Westboro, and discharged in 1917. He came home and resumed his abuse toward his wife and son. Mother tried to have him arrested two or three times but changed her mind. The boy became cowardly, depressed and prematurely old, while the mother became very nervous and easily upset.

In July, 1920, a visitor from the Boston Children's Aid Society went to the home and found the mother ill on a couch from the effects of the husband's brutality. She said he had knocked her down, kicked and stepped on her with heavy shoes, causing severe bruises, — glasses were broken and she was unable to get about. The husband was arrested and sent to the Cambridge jail, where he was bailed out by

his employer. He was later found guilty and placed on probation. In December, 1920, the court case was placed on file. In spite of the fact that the agent recommended probation, the officer was inclined to sympathize with the father as against the mother.

The patient has been examined by Dr. D. (an outside physician), who stated that she is a delicate, nervous woman, hypochondriacal and anæmic. He had treated her principally for pelvic irritation, due to the fact that she had not received proper care after the birth of her child.

Pearl was placed at board in a foster home by the Children's Aid Society, on December 22, 1920. Frederick, after being placed at board, developed many peculiarities which were felt to be abnormal. He was examined at the Psychopathic Hospital, and finally admitted to the School for Feeble-minded at Waverley, November 8, 1921.

Our contact with the patient has been one of fairly good coöperation, but we have felt that she never had a proper environment in which to get well. Mr. S. was arrested again in September, 1921, was found guilty of non-support of his wife and children and of being armed with a dangerous weapon. He was given eight months' sentence and was committed to the House of Correction. On November 1, 1921, the patient was operated on for complete hysterectomy and has gotten along well, but is worried about the approaching return of her husband from jail.

Comment. When this patient was referred to the Social Service Department it was hardly expected that such a chapter of trouble would be disclosed. Can it be wondered that the patient was upset nervously? It would seem that the diagnosis obtains much support.

It has been my experience, when making the diagnosis of so-called irritable heart, to so frequently find in the social history data which might reasonably have given rise to the symptoms, that in all such cases an exploration of this part of the history is suggested. The above case well illustrates the value of so doing. Such patients are often sent to the heart specialist as probable cases of heart disease.

CASE 4. Boston Dispensary, No. 198947. Nora C., 56 years, single.

Family History. One sister, living and well. Past history negative.

Present Illness. Some gastric distress, chiefly belching of gas, not related to meals. Weakness, especially on exertion. Symptoms have been of gradual onset and are of two to three months' duration. Present weight 114 pounds; was ten pounds more a few months ago.

Physical Examination. Heart: Apex impulse in the fifth space about left midclavicular line. Action regular, rate 120. Systolic murmur at

apex and transmitted to base and axilla. Blood pressure 255/135.

On the second visit to the Heart Clinic, it was noted that the heart rate slowed when the patient was quiet, and accelerated readily on exertion or excitement; the rate ranged from 95 to 136. Patient's eyes filled with tears when questioned as to amount of food taken. Diet: one cup of coffee about 7 A.M.; at 9 A.M., cup of tea and one small piece of toast; at noon, same as at 9 A.M., and occasionally an egg; about 5 P.M., one cup of tea, and another before going to bed. Sometimes takes one slice of toast at 5 P.M.

Social History. Patient and unmarried sister live together. As a result of persistent effort it was learned that they had formerly been comfortably off, financially, but of late their income had become so reduced that it was quite insufficient for their needs. The two sisters had been making great efforts to conceal their plight from the neighbors and their pride caused them to be absolutely unwilling to accept aid from any of the public charities. They lived such a shut-in life that it was difficult for them to get a broader perspective of their situation.

On subsequent visits to the Dispensary, it was noted that the patient was growing progressively weaker, and after learning of the markedly insufficient diet, time was taken to discuss the situation with the patient. It was pointed out that she could hardly expect any gain in strength unless more food was eaten. It was stated that, unfortunately, such a change in income was all too common, but since she could not be held responsible for its decrease, there was no cause for shame. It would be less expensive to the city to assist her now than later, when her condition might have deteriorated to one requiring longer and more costly care. As a result of this and other similar reasoning, the patient is now accepting financial assistance in the purchase of food, and as soon as sufficient strength has been regained will be aided in obtaining suitable employment, so that she may again become self-supporting.

Comment. A case like the above immediately enlists one's sympathy. The patient's personality is such that all in the Dispensary with whom she came in contact are interested in her. While it is not held that an increase in the intake of food will cure the hypertension, it seems certain that lack of nourishment and the associated worry are by all odds the conditions to be attacked first. After this has been done perhaps a better estimate may be made of the hypertension and its treatment.

(My thanks are due to Mrs. Boyers and other members of the Social Service Department for their assistance in collecting these records.)

SUMMARY AND CONCLUSIONS.

Four cases have been cited illustrating the importance of the social history in patients of an out-patient heart clinic.

The social history often discloses why certain patients fail to make an expected improvement.

At times the skillful utilization of such data greatly increases the therapeutic success achieved.

The social history may contain information of value in the diagnosis of that type of patient held to have an "irritable heart."

Attention to the social history opens up a big, broad, humanitarian side of the practice of medicine.

Further justification of emphasis of the social history is found in that it keeps alive the fact that our patients are not mere medical cases, but individuals of flesh and blood.

MODERN ASPECTS OF ACUTE EMPYEMA.

By WYMAN WHITTEMORE, M.D., F.A.C.S., BOSTON,

Assistant Visiting Surgeon, Massachusetts General Hospital.

In all cases of thoracic surgery there should be a close coöperation between the medical man, the surgeon, the x-ray department, and the laboratory; and this should be the case not only before operation, but also during the convalescence following it.

Many cases of pneumonia have fluid in the pleural cavity at some stage of the disease, and it is of great importance to know whether or not this fluid is sterile. In other words, one must discover whether there is an early empyema present or merely a sterile fluid, for although one may get some suggestion of the correct diagnosis from the history, physical examination and x-ray, yet the only sure proof is examination of the fluid aspirated in the laboratory.

Etiology. Cases may be divided into three groups according to their etiology.

First Group: Those cases that have been preceded by a definite pneumonia. Second Group: Those cases in which although pneumonia may have been present, yet it could not be demonstrated, being hidden by the early and rapid accumulation of fluid in the pleural cavity. Third Group: Those cases which have not been preceded by a pneumonia.

In the first group, that preceded by a definite pneumonia, there are two ways in which the pleural cavity may become infected with a resulting empyema. First, the infecting organisms may work their way through the visceral pleura from the pneumonic area in the lung

and thus infect the pleural cavity. Secondly, the pleural cavity may become infected by the rupture of a small abscess situated in the periphery of the lung. We have recognized this cause of acute empyema for several years, but especially since the use of Dakin's solution became so general in the treatment of these cases, as there is apt to be a pleuro-pulmonary fistula, especially early in the disease, and the use of Dakin's solution immediately causes a severe paroxysm of coughing, the patient complaining of tasting the solution.

The second group, that in which there is doubt as to the empyema being preceded by a pneumonia, is composed of streptococcus hemolyticus cases. In many of these the fluid in the pleural cavity has appeared so early and has increased so rapidly that it has been impossible to demonstrate a pneumonia.

The third group, that in which the empyema has not been preceded by a pneumonia, is a small group. It is made up of two kinds of cases: those empyemas that are secondary to infection outside the lung, as, for example, sub-diaphragmatic abscess, and those following operation in the esophagus. These last are comparatively rare, but the possibility of the occurrence of an empyema following the dilatation of a stricture of the esophagus should be borne in mind. When this occurs, I believe, it is always to be found on the right side.

Diagnosis. The history plays a very important part in making the diagnosis. One should always be suspicious of the pneumonia patient whose temperature comes down to normal and stays there for twenty-four hours and then begins to go up. Many times one is called upon to make a differential diagnosis between an encapsulated empyema that has ruptured into a bronchus and a lung abscess or a bronchiectasis condition. A careful history may show that the patient had pneumonia possibly several months previous to coming to the hospital and this would point more towards an empyema that had been unrecognized than to lung abscess or bronchiectasis. On the other hand, the history may show that the patient had a tonsillectomy a week preceding the infection in his chest, and this would throw considerable evidence towards a lung abscess, as in my series of lung abscess cases, between 65 and 70 per cent. of them are preceded by some operation on the upper respiratory tract. If there was no history of pneumonia or an acute infection of the lung following an operation on the upper respiratory tract, but a gradual insipient onset of cough and increase in sputum, the evidence would point more towards a bronchiectasis.

The final diagnosis depends on the laboratory findings. If the fluid aspirated contains many or few polymuclear leucocytes but no organ-

ism, it is not an empyema (unless one wants to quibble and call it a sterile empyema). On the other hand, if the fluid shows leucocytes plus an organism, it is an empyema, and it does not make any difference whether there are 40 or 90 per cent. polymuclear leucocytes, as it is an empyema in either case. It is important to know what kind of an organism is present, as a streptococcus case should be handled differently from a pneumococcus one. Furthermore, if one is dealing with a staphylococcus aureus case it is well to know it, as it will probably have complications that the ordinary pneumococcus or streptococcus one will not have. I refer to one or more abscesses of the lung, as I have seldom seen a staphylococcus empyema that did not have this complication. The examination of the sputum will sometimes help greatly in making the diagnosis. Recently I have had a case in which the diagnosis lay between an encapsulated empyema and a lung abscess. The sputum showed pus and no organism other than pneumococci, making the diagnosis of encapsulated empyema almost certain, as in lung abscess there are several different kinds of organisms always present.

One may say, what is the use of having an acute empyema x-rayed if aspiration has already been done and the diagnosis proved. Occasionally there is a case of encapsulated empyema that is not suspected from the physical signs, and it is well to know this as it may be that this should be operated on in a different way from a general empyema. The x-ray should always be taken with the patient in the upright position, as this will show a fluid level and help very much in making the diagnosis, whereas if the plate is taken with the patient lying down, there is merely a generally haziness throughout the diseased side of the chest, and the plate is not of very much value unless there is such a large amount of fluid that the heart and great vessels are displaced. Sometimes the x-ray is of great value in clearing up the diagnosis in the cases of small encapsulated empyema that are not found with the aspirating needle. Not infrequently, we see a case which has all the classical signs of an empyema below the angle of the scapula, but we are unable to get anything with the aspirating needle. In these cases the x-ray often shows a small empyema high up at the level of the 4th rib, which is then easily found at operation and the diagnosis of the x-ray proved to be correct.

Although physical examination is of great value, and in many instances throws much light on the case, yet in others it is very disappointing. There is no question but that in some cases it is impossible to be sure whether or not there is fluid present in the pleural cavity. In the wave of influenza bronchopneumonia cases several years ago this was very

noticeable, as in so many of these it was impossible to be sure of the presence or absence of fluid. I believe the most reliable sign of fluid is the absence of tactile fremitus.

Operation: There are two practical surgical techniques for the treatment of acute empyema. The first is the open operation or rib resection. This should be used in the old acute cases in which aspiration shows a thick pus, as in this group we know that the lung is adherent and that an open pneumothorax does no harm. It should be used in the encapsulated empyemas, and in those in which operation has been preceded by several aspirations. If the Carrel-Dakin technique is correctly carried out the convalescence will be much shorter and more satisfactory than that which any other technique can produce. If this technique is to be used it is probably not absolutely necessary to have the most dependant drainage. On the other hand, if the case is in the country, where it is impossible to get Dakin's solution, then the most dependant drainage possible is essential. I believe that in this group of cases irrigation with normal salt solution will hasten the convalescence considerably.

The second practical surgical technique is the closed suction method—that is, draining the pleural cavity without allowing air to enter it. This should be used in the desperately sick, regardless of whether the pus aspirated is thick or thin: this operation being done with the hope of tiding the patient over his critical condition, after which something more radical can be done if necessary. It should be used in the streptococcus cases, and also when one can get a case early, by which I mean when the fluid aspirated is a thin pus containing an organism.

We know that there is every argument against early operation by the open method, as the acute pneumothorax produced causes a high mortality; but there is no argument against this closed suction method in the early cases, as it is merely an aspiration so arranged that it does not have to be repeated and the pleural cavity can be sterilized by means of it. Draining the pleural cavity early, without allowing any air to enter, has many advantages over delayed drainage. In the early stage the lung is not adherent, but merely compressed by the fluid, and if one drains the fluid off without allowing air to enter, the lung will quickly expand; and provided air does not enter the pleural cavity, it will stay expanded. In early drainage such complications as septicaemia, pericarditis and pyaemia are much lessened; also the danger of small pockets becoming walled off from the general cavity is lessened. In fact, I have never had a secondary pocket in any so operated upon. One of the most frequent causes of chronic empyema—too late drainage—is largely done away with.

The closed suction method is so simple and has saved so many lives in the past, and, if used in the correct cases, will continue to save so many in the future, that it seems worth while to describe it again. This method has been much simplified since it was originally used. Some years ago we gave up the electrical suction pump and began using a large 4 oz. glass syringe for suction and irrigations, and this has proved more satisfactory than the pump.

A No. 22 French catheter is put into the pleural cavity, by means of a large trocar, between the 5th and 9th ribs. This is shut off with a hemostat before being put in and kept shut off all the time except when aspiration of the fluid is being done or irrigations are being carried out. The catheter being sewed in tight and fastened also with adhesive plaster, the fluid is gradually removed. In cases in which there is a large amount of fluid we take off about 3 or 4 oz. every twenty minutes until the cavity is dry. At this time we begin irrigations with normal salt solution. These are kept up every two hours or the first twenty-four hours and then irrigations with Dakin's solution are begun. This should be used every two hours, and it is well to do one irrigation with salt solution once each twenty-four hours to prevent the catheter becoming clogged. On the third day following operation, and every day after this, the skin around the catheter should be gone over with iodine for an area of 2 inches. In this way a secondary infection with staphylococci will almost always be avoided. Dakin's solution in itself tends to prevent a secondary infection, but does not always do so, and iodine is a great aid.

The only proof of an empyema being cured is when there are no longer any organisms in the pleural cavity or the sinus. The most reliable test is to take a smear after all irrigations have been stopped for twenty-four hours. When we have three tests taken at forty-eight hour intervals that show no organisms we consider the pleural cavity sterile and remove all drainage apparatus, and to date we have never had a recurrence. One must not be misled by the presence of many leucocytes, as these will always be present. On the other hand, in following the exact Carrel-Dakin technique of taking a smear when no irrigations had been done for only two hours, and considering the pleural cavity sterile when the smear showed not more than one organism to four or five fields, we have been disappointed several times in having a recurrence of the empyema.

Anaesthesia: Local anaesthesia is without question the best anaesthesia to use in all cases of empyema. It can, of course, be used in all adult cases and in practically all children and infants. It is only very rarely that it is necessary to give any infant a general anaesthetic.

It is very simple to introduce a catheter in the closed method under local anaesthesia, and one or more ribs can be resected with ease, either by blocking the intercostal nerves near the site of the operation or by paravertebral anaesthesia. If it is impossible to use a local anaesthetic, and a general one must be used, gas oxygen, given by an expert, is the best; but in the desperately sick, and in those cases in which the empyema has perforated a bronchus, it is a very dangerous procedure. It is dangerous in this latter group of cases as the patient may actually drown in his own pus, and if he does not do this he can easily spread the infection into the other lung.

We no longer turn the patient onto his sound side with the empyema side up, as this may prove dangerous. It is better to operate with the patient sitting up in much the same position that the medical man uses for aspiration or else lying prone on his face with his arms stretched along side his head. This is a most excellent position in which to operate.

In the acute cases that have become healed one often leaves a cavity varying in size, but this cavity is sterile and will give no further trouble, as it gradually disappears by the lung expanding to fill it. This is interesting and important to recognize as it is quite different from what takes place in a chronic case, where the only cure is to obliterate the cavity before allowing it to close. It is a simple matter to sterilize a chronic cavity and get the sinus to heal, but there will always be a recurrence sooner or later as long as there is any cavity in a chronic case.

Dakin's solution, if correctly made and correctly used, will sterilize the pleural cavity more rapidly than any other solution. It is true that an occasional case does brilliantly with normal salt solution irrigations only, but this is rare, and it is interesting to take one that has been on salt solution irrigations for two or three weeks and put it on Dakin's solution, as immediately there are masses of fibrin noticeable which tend to clog the drainage tube. These masses of fibrin are, I believe, particles of the pyogenic membrane which is being broken up and dissolved by the Dakin's solution. In cases in which there is a pleuropulmonary fistula, Dakin's solution will cause severe paroxysms of coughing, and if these are prolonged they may throw the patient into a state of temporary collapse. As it is possible to have a pleural reflex set up by irrigating the pleural cavity with Dakin's solution or any other solution, in these cases, which are extremely rare, it is hardly fair to blame the Dakin's solution for the condition, as it is probable that using water or salt solution would have had the same effect. I have never seen any alarming hemorrhage from the use of Dakin's solution in the pleural cavity.

In all cases there will be a slight bleeding from the healthy granulation tissue being irritated by the solution, which often occurs towards the end of the treatment when the cavity is nearly sterile, but this is of no consequence except as a sign that the pleural cavity is approaching the stage of sterilization.

The after-care should not be confined to the sterilization of the empyema cavity alone, but the general condition of the patient should be built up. Breathing exercises should be begun as soon as the patient's condition will permit. We still believe in and use the old-fashioned blow bottles and can usually begin the use of these in two or three days after operation. The patient should continue to use these, not only until healed, but also for several months afterward. Breathing exercises and setting up exercises should be insisted on when the patient is able to be up and about. These should be faithfully carried out for many months with especial care, not only to get the lung to work fully again, but to prevent any curvature of the spine.

The golden time to cure a case is when it is still acute and not after it has become chronic. The pneumococcus cases should be entirely cured—that is sterile and healed—in from four to six weeks; the streptococcus ones generally take about a week or ten days longer, and the staphylococcus ones vary considerably. Some will heal in four to five weeks and others, especially those which are so commonly complicated with multiple small abscess of the lung, will take much longer. For a long time we have not sent any cases out of the hospital until entirely healed. The days in which these cases were operated on and sent out of the hospital with a drainage tube still in, many of them to become chronic cases, are, I hope, gone forever.

ACUTE ETHMOIDITIS WITH ORBITAL ABSCESS. WITH CASE REPORT.*

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"ACUTE empyema of the ethmoid cells alone is, generally speaking, an uncommon affection, at least in our country" (Skillern¹). A case occurring in my practice during the past year presents enough unusual features to be of interest.

Anatomy.—The ethmoid labyrinth embraces all that portion (of the head) lying between the two lateral plates of the orbit. It is composed of two capsules with a partition

*Read before the Staff of the Memorial Hospital, Worcester, Mass.

(perpendicular plate of the ethmoid) between. The capsules have a prolongation at their internal inferior angles which correspond with the middle turbinates . . . the ethmoid occupies approximately one-half the entire space between the floor of the nose and the cribiform plate.^{17, 2}

The literature is rich in descriptive material and case reports of ethmoid and frontal sinus empyema, complicated by orbital phlegmon or orbital abscess, but the case I wish to report has three unusual points of interest, namely: (1) The apparently obscure etiology. (2) The short time elapse. (3) The slight disintegration of bone, in view of the severity of the symptoms.

(1) Empyemas of the ethmoid and frontal sinuses are, as a rule, in the nature of acute exacerbations of chronic inflammatory conditions affecting these labyrinths; the ostiums or outlets become occluded by hyperaemia or hypertrophy of the mucous membrane covering, by polypoid growth, by inspissated pus and mucus, or by an enlarged middle turbinate filling the middle passage of the nose and preventing free discharge of the bacterial products.

A severe coryza superimposed on a chronic inflammatory condition is probably the most common cause of empyema of the ethmoid and frontal sinuses, which in turn forms the focus for the orbital infection. The contents of the orbit are infected either through direct extension of the pus process by necrosis of the orbital plate and actual contact, or by metastasis by way of the ethmoid veins.

The so-called idiopathic cases can usually be traced to preceding systemic diseases, such as measles, scarlet fever, diphtheria, influenza, and many others.

My case gives no history of recent infectious disease or nasal trouble of chronic nature. The adenoids and tonsils were hypertrophied. A mild coryza made its appearance twelve hours before the eye symptoms became pronounced.

(2) Short time elapse. In 1919 Dr. Ira Frank³ reported a case of fulminating ethmoiditis with metastasis occurring five days after the incidence of influenza. After a careful search of the records he believed this to be the shortest time elapse reported up to that date. My case went to bed with a mild coryza, and one nostril occluded, and awoke in the morning with protruding eye, and all the classical symptoms of abscess of the orbit. Skillern⁴ reports a case similar to mine in time but with a well-defined history of previous nasal disease.

(3) Slight disintegration of bone. Probably the time element enters here; not sufficient to have broken down the septa between the cells. No caries of the frontal bone was dem-

onstrated and the mucous membrane lining the frontal sinus was pink and healthy.

Importance of Early Operation.—Blindness, partial or complete, temporary or permanent, is a frequent symptom where there is sufficient cellulitis within the orbit to produce exophthalmos. Skillern says, "the course of the infection is backward, along the course of the optic nerve, and will quickly penetrate the cranium, causing lethal intra-cranial complications."⁵

Prompt measures are, therefore, indicated to evacuate the pus, relieve tension, and remove necrotic bone.

Choice of Operation.—Intranasal operations for the exenteration of the ethmoid and enlarging of the naso-frontal duct are advised by many surgeons. The nostril is usually tightly filled by the swollen turbinate, and there is frequently present a deflection of the nasal septum toward the affected side; indeed, the narrowing caused by this deviation being a factor in the production of the empyema. The hemorrhage is profuse, further obscuring the field of operation. A modified Killian operation, by the external route, presents the certain advantages of speed and a clear view of the parts. It has the disadvantage of scarring, usually aggravated by infection of the wound and consequent delayed healing. The orbital plate must be removed in part, the intra-orbital abscess evacuated, and as this region cannot be seen or palpated through the nose the external operation would seem to be the method of choice in this emergency.

Case History.—R. N., age 12 yrs. Admitted Memorial Hospital, Sept. 13, 1920. C. C. Pain and swelling in left eye. P. H. Measles when an infant; pertussis 4 mo. ago. Habits. Appetite good, sleeps well, has not lost weight. Present Illness. Began 3 days ago with coryza; 2 days ago on waking in morning found that left eye was greatly swollen and protruding. Double vision, lids thick, edematous, and red. Eye painful and with a very painful spot on side of nose above inner canthus. Slight nasal discharge. The eye became more swollen and painful.

Physical Examination.—Well-nourished, well-developed white boy. No infection of ears or throat. Tongue clean. Left eye, marked exophthalmos, the eye protruding forward and outward; lids thickened, red, and closed over eyeball. Nose, middle and inferior, turbinates completely block left nostril; very little thin discharge. Right nostril normal. T. 102.2, P. 90, R. 20. W. B. C., 12,400. Urine normal. Neck, thorax, abdomen, etc., normal.

Notes.—Sept. 14. Case seen in consultation and referred to my service; advised immediate exenteration of ethmoids; permission for operation not obtained until following day.

Operation.—Sept. 15. A curved incision through eyebrow, continuing down nose, internal to lachrymal sac. Periosteum elevated without disturbing pulley of trochlear muscle or tear sac. Anterior ethmoid entered with gouge; thick, light yellow pus encountered under slight pressure. Rongeur used to enlarge bone wound. Frontal sinus filled with pus, mucous membrane normal and not removed. Anterior ethmoid cells filled with pus but not necrotic. All septa and cell walls in ant. ethmoid region removed and a large, smooth passage everted through bulla region, giving free drainage. Part of orbital plate removed but no abscess located within orbit. It was not necessary to clean out the posterior ethmoid or sphenoid cells.

Plain gauze drain passed through this artificial opening, the proximal end lying in the ethmoid-frontal region, the distal protruding from the nostril. Wound closed with horsehair sutures. Culture of pus from cavity showed *Staph. Aureus*. Temperature did not rise above 99 following the operation. Drain removed on the second day. Exophthalmos disappeared by fifth day. Wound opened sixth day; profuse discharge of pus from wound and into naso-pharynx.

October 2.—Discharged from hospital, wound still discharging; sight in both eyes normal.

Subsequent History.—All nasal pus ceased in two weeks. Two small sequestra removed about one month after operation. Wound healed in six weeks.

February, 1922, a year and three months following the operation; tonsils and adenoids have been removed by myself. Still has occasional mild coryza, no return of ethmoid symptoms. Circular depressed scar, about 2 cm. in diameter, not very noticeable.

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HEART DISEASE IN INDUSTRY.

By W. IRVING CLARK, JR., M.D., WORCESTER, MASS.

THE majority of males in the Eastern States are connected directly or indirectly with some form of industry. Most of those connected with industry are doing more or less laborious work and depend upon this for their livelihood. Tuberculosis has for years past been recognized as one of the prevalent diseases among industrial workers. It is only recently that the attention of the public has been called to the prevalence of cardiac disease. While cardiac disease does not produce the early mortality of tuberculosis, for the past three years

organic heart disease has caused more deaths than tuberculosis. Dublin,¹ in a résumé of the importance of organic heart disease to the community, gives the following statistics:

"Prevalence.—Two per cent. of the persons examined by insurance companies are rejected because of serious heart defects.

"Two per cent. of industrial workers are found on careful examination to be subjects of serious heart defects.

"Two per cent. of those examined in the draft and camp examinations by army medical examiners were rejected on account of serious heart defects.

"One and one-half to two per cent. of the children examined in the schools show serious heart defects.

"Effect on Longevity.—It has been found that heart disease has a serious effect on longevity, reducing the span of life by practically one-half.

"Mortality.—The death rate from organic heart disease for a series of recent years has been fairly stationary, its rise to first place being accomplished by the fall of tuberculosis.

"Under 25 years of age organic heart disease causes as many deaths as typhoid fever.

"Between 25 and 34 years organic heart disease causes as many deaths as lobar pneumonia.

"Between 35 and 44 years organic heart disease causes more deaths than Bright's disease.

"After 45 years organic heart disease shows a higher death rate than any other cause."

With these figures in mind it is evident that approximately two per cent. of all workers are liable to the interruptions of steady work and other disabilities to which patients with organic heart disease are subject.

White,² in an admirable paper recently published, says: "There is not, as far as I know, any industrial heart disease." The majority of industrial physicians will agree with this statement, which means that the heart disease found in industry is, in the majority of cases, directly traceable to some condition not connected with industry, and that thus far, although there are substances which cause D. A. H. and cardiac syncope, no industrial poison known has a specific effect on the heart resulting in disease. Arteriosclerosis, as he points out, is a very important cause of heart disease, but whether arteriosclerosis can be attributed solely to work in industry is questionable. That it may be due to lead poisoning is recognized.

In 1914, Cabot, following an analysis of 600 hospital cases of "failing heart," found that 93 per cent. fell into one of the four following classes: (1) Rheumatic, (2) nephritic, (3) arteriosclerotic, (4) syphilitic. This is probably as satisfactory an etiological classification as can be found to use in industry.

The prevalence of tonsillitis in industry is recognized. At Norton Company, in 1919-1920, this disease stood fifth on the list of diseases causing lost time, rheumatism standing sixth. The latter term, however, grouped both acute and chronic rheumatism and is therefore of little value. A large factory employing over 10,000 workers in the Middle West shows tonsillitis to be the second most prevalent disease and rheumatism the third.

The amount of nephritis in industry is more or less an unknown question. While in certain industrial medical departments some statistics are available, not enough thorough work has been done to make these of much value.

Syphilis, while it is recognized frequently in its active stage, is seldom diagnosed in industry after the secondary stage. Occasionally the condition of the heart or some other organ suggests the advisability of a Wassermann, but no routine laboratory work is possible in the majority of industrial clinics.

The amount of arteriosclerosis is likewise largely conjectural. It will be seen from this that the attention of industrial physicians has been called definitely to the prevalence of tonsillitis and rheumatism in industry, but that the other etiological facts have not as yet been of sufficient importance, because of their symptoms and resulting disability, to make any reliable statistics available.

Judging from Norton Company experience and records, I feel that the majority of cases of heart disease are secondary to germ infection; that in most of these cases the germ was that harbored in the tonsils or causing rheumatic fever; that of the remainder, most were secondary to influenza and were probably of streptococcal origin, while very few in any way can be linked with syphilis.

In industrial work, as in cardiac clinics, the most frequent heart lesion encountered is chronic mitral disease showing insufficiency of the valve without stenosis. At Norton Company we have been very careful not to include in our statistics any case in which the murmur was not transmitted to the axilla or back, but even after a rather rigid investigation, 63 of our 76 recorded heart cases appear to be true cases of mitral insufficiency. Next in frequency in our experience is aortic insufficiency with mitral incompetence. Other cardiac conditions are rare. The average age of our patients was 37 years, showing that heart disease as it exists in this particular factory allows work over a long period of time. This is further emphasized by the fact that only 11 of the 76 had any symptoms from their hearts while working, and in only three cases was it necessary for the worker to lose more than a very few days because of decompensation. Placed in tabular form, our statistics are as follows:

Business: Manufacture of abrasives, grinding wheels and grinding wheel machinery. Average number of employees, 3200; number of records reviewed, 8100; number of cases of heart disease, 76; per cent. of employees having heart disease, .95 per cent; number of cases of heart disease applying for work but rejected because of condition in 1920, 4.

One of the cardiac classifications adopted by the Association of Cardiac Clinics in New York and quoted by White is as follows: (1) Those able to carry on their habitual activities (without symptoms of distress); (2) those able to carry on slightly curtailed activities; (3) those able to carry on moderately decreased activities; (4) those able to carry on only greatly diminished activity; (5) those unable to carry on any of their habitual activities.

Classifying Norton Company cases along these lines we find: Class 1, 52 cases; Class 2, 13 cases; Class 3, 8 cases; Class 4, 3 cases; total, 76 cases.

In further tabulating we have decided to record the following: (1) Evidence of disease; (2) age of patient; (3) response to exercise and work; (4) history or physical findings suggesting previous tonsillitis or rheumatic fever; (5) history or evidence of previous venereal disease; (6) condition of teeth; (7) symptoms suggesting cardiac decompensation while at work.

Placed in tabular form, the statistics are as follows:

Mitral Systolic Murmur (organic).....	60
Mitral Systolic Murmur with marked irregularity	3
Aortic Diastolic and Mitral Systolic Murmur ..	9
Presystolic Murmur at Apex (not Flint)....	1
Hypertrophy and dilation with marked irregularity	1
Aortic Diastolic Murmur.....	1
Age (average)	37 yrs.
Response to Exercise and Work:	
Good	53
Fair	18
Poor	2
?	3
Rheumatism or Tonsillitis, history or symptoms	24
Venereal Disease:	
Gonorrhea	2
Syphilis	0
Poor Teeth	40
Heart Symptoms while at Work.....	11

It is interesting to note that the number of workers with heart disease at Norton Company is one-half the number usual in industry as a whole. It cannot be said that this is due to the physical examination before work as only four cardiacs were rejected in one year. The probable explanation is that the worker usually finds his own physical level. The cardiac quickly realizes that there are certain kinds of work he is unable to do and adjusts his life

accordingly. The result is that only those are found in unskilled and semi-skilled work who are physically able to do the work. Arguing from this, one would expect to find a correspondingly high percentage of cardiac cases in the more sedentary occupations. I have been unable as yet to find out whether this is a fact.

In considering work as an etiological factor in cardiac disease, though this may have played an important part in the past and possibly does today in certain industries which require heavy work for long hours, the tendency throughout the country is to reduce the work schedule to 48 or 50 hours a week. This, with the elimination of alcohol, may have an interesting effect on the hearts of the present rising generation. However, after considering the matter in as unprejudiced way as possible, one cannot help feeling that if pathogenic bacteria were eliminated the heart could stand any reasonable amount of work without resulting disease. What can be done for the individual cardiac in industry? If the hypothesis that cardiacs in industry find their own level is correct, the problem for the industrial physician is to prevent strain. This requires (1) A careful primary examination and record; (2) an adjustment of work when this appears advisable; (3) reexaminations at stated intervals; (4) careful instruction as to proper living outside of factory work.

By following such an outline organic heart disease may carry on in industry with minimum risk and maximum value to the diseased individual and the community.

REFERENCES.

- ¹ Dublin, Louis I.: Publication of Association for Prevention and Relief of Heart Disease, N. Y.
- ² White, Paul D.: *Journal Industrial Hygiene*, Dec., 1921.

THE INFANTILE HEART IN ADULT LIFE.

BY LOUIS FAUGERES BISHOP, A.M., M.D., Sc.D.,
F.A.C.P., NEW YORK.

*Consultant in Heart and Blood Vessel Diseases,
Lincoln Hospital, New York City, New York.*

ONE of the hardest things to realize during the transition from a practice of medicine founded upon pathologic anatomy, to a practice of medicine founded upon pathologic physiology, has been that important conditions, even of a physical nature, can exist during life and yet be overlooked at post-mortem examination.

Vaquez¹ and others have come to our rescue in their observations in this one particular, namely, that a very distinct dilatation in the

region of the conus, meaning an enlargement of the pulmonary artery, showed no corresponding post-mortem condition by the methods employed in such work up to the present time. In fact, the examination of the right side of the heart and pulmonary circulation is, as a rule, carelessly carried out.

The electrocardiogram, through the revelation of right-sided predominance, has brought the pulmonary circulation into greater prominence. As a result, many careful observers have reached the conclusion that embarrassment of the right side of the heart, due to disease or congenital defect dated from early life, is not nearly so rare as was formerly supposed.

No matter how many hearts we examine we do not find any two hearts alike, any more than we find no two faces exactly alike, no matter how large the group. However, just as people resemble each other, and can be grouped into many categories, so hearts can be grouped. From time to time, people have called attention to particular types, and the value of this grouping has been in the relationship of the groups to health and disease conditions studied. A group which has presented itself to me more and more, as I have studied it, I have ventured to give the name of the "Infantile Heart," just as Balfour² named the Senile Heart.

The infantile heart is met with as a recognizable condition from the tenth year of life onward. I have thought that I could identify it even in the fifties and sixties. These people have a heart characterized by a relative right predominance (Figure 1), by the persistence of sinus arrhythmia at all ages, by a limitation of cardiac response, by a tendency to attacks of palpitation, and also by a consciousness of the heart that average people do not have. They often show a blowing murmur in the pulmonary region.

The pathologic anatomy I have not yet had an opportunity to work out, and must present this as a clinical group.

The man with an infantile heart can go as far as he will, without injury to the heart, because his wind gives out and he must stop. The left side of the heart is not overdeveloped because the pulmonary circulation, failing first, the left ventricle never has had any opportunity to be increased in size, such as comes to those who indulge unduly in athletic contests.

A very promising football player recently came under observation because a peculiarity was detected in his heart and the conclusion was reached that it might prove dangerous for him to indulge in the game. He was a man of tremendous build, capable of great effort for a short time. He showed some distress on breathing. An examination showed the syndrome of an infantile heart, namely, a right predominance, sinus arrhythmia, a his-

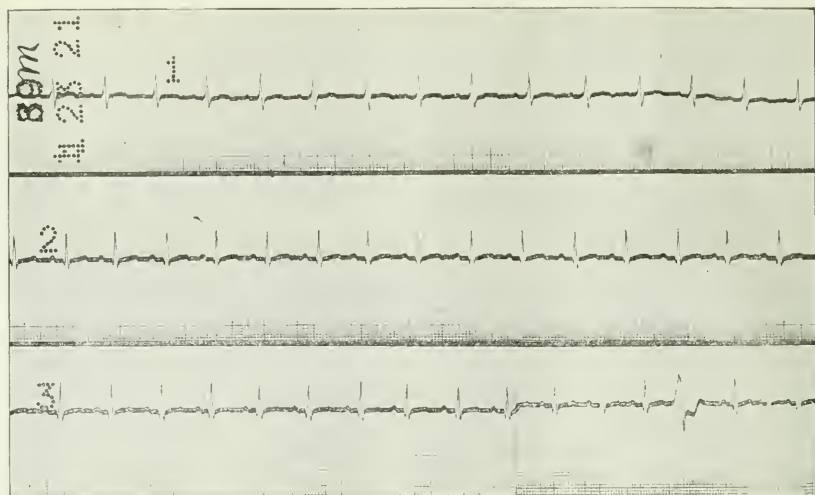


FIGURE 1.—An electrocardiogram showing a relative right ventricular preponderance. There is one ventricular extrasystole in the third lead.

tory of palpitation, and a soft blowing murmur above and to the left of the middle of the sternum.

On the ground that he probably would not hurt himself, since he would have to stop before any damage was done, he was allowed to continue to play football.

Indeed, this has been the policy in athletics with regard to boys suffering with this syndrome. They are allowed to go as far as they are able without distress. Distress comes earlier in these cases than in a compensated mitral condition or in an aortic regurgitation.

This group has proved to be a useful one as the repository for some conditions that are not definite enough to be labeled congenital heart disease, and which do not present the findings, symptoms or history of acquired cardiac defect.

All symptoms comprised in the syndrome must be present, and can usually be brought out by careful questioning. Of course, the predominance and the sinus arrhythmia must be determined by the examination with instruments of precision. The fluoroscope usually shows besides a centrally located heart shadow (Figure 2), a fairly definite predominance in the region of the conus. The palpitation may not be recognized by the person, because he does not know that other people can do things without inducing a rapid heart, which he cannot.

It is purely physiologic for a child to have a rapid heart after violent exertion, so this is a quantitative symptom. The same is true of

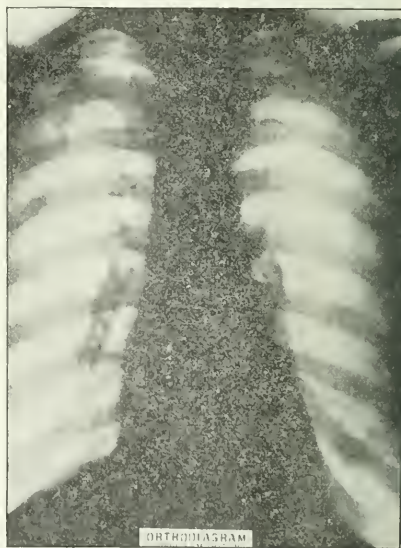


FIGURE 2.—Roentgen ray photograph taken at a distance of six feet to show centrally located heart typical of these patients.

precordial distress. It is often better obtained by observing the person under exercise than by depending on the statement of the person under examination.

An interesting problem has been the recog-

nition of this condition in later life. It has seemed that, on several occasions, I could surmise that this condition had existed in the early life of people who later developed extremely high blood pressures (I mean, 230 and 240, and the like), which could not be accounted for in any way, and which were carried with an unusual degree of tolerance. In one instance, the son of such a man showed definite evidence of having an infantile heart.

No one who has studied high blood pressure for a long time doubts the existence of these strange examples of high blood pressure in people without any discoverable disease and showing very few symptoms. They present anomalous circulatory relationships, and, as stated above, may be accounted for as the advanced development of infantile heart. They differ from the ordinary high blood pressure cases in that their hearts are not markedly the subject of a left predominance. There may even be a right predominance at an advanced age.

A certain number of infantile hearts seem later to conform to the normal type. In other words, in popular language, the condition is outgrown.

The illustration is a typical example of an infantile heart in an adult.

109 East 61st Street.

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- ¹ Vaquez, H., and Bordet, E.: The Heart and the Aorta, translated by Macy, J., and Howell, H. Yale University Press, 1920.
² Balfour, G. W.: The Semple Heart, 2nd Edition. Adam and Charles Black, London, 1896.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI	CHARLES H. LAWRENCE
LAURENCE D. CHAPIN	HERMAN A. OSGOOD
AUSTIN W. CHEEVER	FRANCIS W. PALFREY
ISADOR CORIAT	EDWARD H. RISLEY
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ROBERT M. GREEN	JOHN B. SWIFT, JR.
JOHN B. HAWES, 2d	WILDER TILSTON
JOHN S. HODGSON	BRYANT D. WETHERELL
FRED S. HOPKINS	

THE TREATMENT OF INSOMNIA.

RUDOLF (*Brit. Med. Jour.*, March 11, 1922) divides insomnia into nine classes as follows:

1. Dolorous.
2. Digestive.
3. Cardiac and dyspnoeal.
4. Cerebrospinal and neurotic.
5. Psychic.
6. Insomnia due to physical fatigue.
7. Genito-urinary.
8. Febrile and auto-toxic.
9. Toxic.

He summarizes his remarks in regard to this subject thus:

1. All cases of insomnia may be classified as being produced either by an increase in the excitability of the nerve centres, or from an increase in the afferent stimuli reaching those centres, or by both.

2. In every case the afferent stimuli should be reduced as much as possible, and to this end, after the environment has been made as appropriate as practicable, physical therapy, especially hydrotherapy, should be employed.

3. If the excitement of the cerebral centres remains too great, then this may have to be reduced by the employment of hypnotics, and here the mildest should first be used.

4. Opium and its derivatives should never be employed in the treatment of chronic insomnia, or in that dependent upon abnormal mental states.

[J. B. H.]

AORTIC REGURGITATION.

RUSSELL-WELLS (*The Practitioner*, Feb., 1922) sums up his opinion on aortic regurgitation and its treatment in the following paragraph:

"To sum up, digitalis should only be given, if at all, with the greatest caution in cases of pure aortic regurgitation. It may be given with perfect safety when there is some lesion of the mitral valve which insures permanent mitral regurgitation as well as the aortic incompetence. It may be given with much benefit when there is secondary mitral regurgitation, but as soon as the mitral valve shows signs of becoming competent, it should be stopped before absolute competence is reached. Strophantus is thought to be safer than digitalis because it is considered to affect the peripheral vessels less, but the same principles apply."

[J. B. H.]

TUBERCULOUS ABSCESSSES OF THE CHEST WALL.

AUCHINCLOSS (*Ann. of Surg.*, April, 1922) writes as follows:

Tuberculous abscesses of the chest wall are frequent enough to be of importance to the general surgeon, yet rare enough for many surgeons not to have had enough cases for study as to their pathogenesis and treatment.

There is a widespread opinion that such cases are, in the majority of instances, due to a "tuberculous rib" as the distributing or "primary" focus. The cases studied would indicate this not to be the case. The ribs did not show tuberculosis except after pieces of them had been removed and continuation of the tuberculous infection had occurred with secondary infection.

The distributing factor for the abscess seems to be from those structures immediately beneath the bony, cartilaginous or muscular chest wall. The lungs, the pleura and the mediastinal lymphatics seem pre-eminently responsible. The abscess is frequently deep as well as superficial to the chest wall; e.g., the "collar-button" or "dumb-bell" abscess.

The abscesses occur chiefly on the antero-lateral aspects of the chest wall rather than posteriorly.

The associated tuberculous lesions are varied in number and importance. They may or may not be more important than the abscess.

An extraordinarily large amount of calcium deposit may be present. The x-ray plates showing calcium are rather characteristic.

The story of influenza or an acute pulmonary condition may determine the onset of the abscess formation.

As complete excision of the tuberculous focus, leaving vascular, well-nourished walls to come together, with filling in dead spaces by muscle and pressure bandage and primary closure of wound, is the treatment, though this may have to be modified by an associated lesion.

[E. H. R.]

The Massachusetts Medical Society.

PROCEEDINGS OF THE COUNCIL.

ANNUAL MEETING, JUNE 13, 1922.

THE annual meeting of the Council was held in the amphitheater of Building A at the Harvard Medical School, Boston, at 12 o'clock noon, June 13, 1922. The President, Dr. John W. Bartol, was in the chair and the following 115 Councilors present:

BARNSTABLE.

W. D. Kinney, Osterville, M.N.C.

BERKSHIRE.

A. P. Merrill, Pittsfield.
B. W. Paddock, Pittsfield.
P. J. Sullivan, Dalton, M.N.C.

BRISTOL NORTH.

Samner Coolidge, Middleborough, V.P.
W. H. Allen, Mansfield.
F. A. Hubbard, Taunton, M.N.C.

BRISTOL SOUTH.

E. F. Cody, New Bedford.
W. A. Dolan, Fall River.
R. W. Jackson, Fall River, M.N.C.

ESSEX NORTH.

R. V. Baketel, Methuen.
T. R. Healy, Newburyport, M.N.C.
G. E. Karth, Lawrence.

ESSEX SOUTH.

F. W. Baldwin, Danvers, V.P.
Loring Grimes, Swampscott.
W. T. Hopkins, Lynn.
J. F. Jordan, Peabody.
W. G. Phippen, Salem.
J. W. Trask, Lynn.

FRANKLIN.

B. P. Croft, Greenfield.
G. P. Twitchell, Greenfield, M.N.C.

HAMPDEN.

M. B. Hodskins, Palmer, V.P.
A. C. Eastman, Springfield.
J. P. Schneider, Palmer.

HAMPSHIRE.

A. J. Bonneville, Hatfield.

MIDDLESEX EAST.

L. M. Crosby, Wakefield.
W. H. Keleher, Woburn.
Ralph Putnam, Winchester.

MIDDLESEX NORTH.

W. E. Jackson, Lowell.
J. H. Lambert, Lowell.

MIDDLESEX SOUTH.

E. H. Bigelow, Framingham, M.N.C. and C.
E. W. Barron, Malden.
F. G. Curtis, Chestnut Hill.
John Puff, Charlestown.
W. E. Fernald, Waverley.
C. B. Fuller, Waltham.
C. E. Hills, Natick.
F. R. Jonett, Cambridge.
H. J. Keaney, Everett.
S. F. McKeen, Allston.
C. E. Mongan, Somerville.
C. F. Painter, Newton, C.
W. D. Ruston, Somerville.

J. W. Sever, Cambridge.

C. H. Staples, Malden.

E. H. Stevens, Cambridge, M.N.C.

A. K. Stone, Framingham Center, Treasurer.

Fresenius Van Nijis, Weston.

H. R. Webb, Arlington.

W. S. Whittemore, Cambridge.

Alfred Worcester, Waltham, Ex-P.

NORFOLK.

W. J. Walton, Dorchester, V.P.
W. B. Batchelder, Dorchester.
E. H. Baxter, Hyde Park.
W. L. Burrage, Jamaica Plain, Secretary.
J. A. Ceconi, Dorchester.
D. G. Eldridge, Dorchester.
T. F. Greene, Roxbury.
F. C. Jillson, Jamaica Plain.
G. W. Kaan, Brookline.
Bradford Kent, Dorchester.
H. H. Powers, Brookline.
Victor Safford, Jamaica Plain.
Augusta Williams, Brookline.

NORFOLK SOUTH.

C. S. Adams, Wollaston.
G. M. Sheahan, Quincy.

PLYMOUTH.

A. L. Reals, Brockton, V.P.
W. C. Keith, Brockton.
Gilman Osgood, Rockland.

SUFFOLK.

J. S. Stone, Boston, V.P.
J. L. Ames, Boston.
S. H. Ayer, Boston.
J. W. Bartol, Boston, President.
V. Y. Bowditch, Boston.
J. T. Bottomley, Boston.
J. E. Briggs, Boston.
M. E. Champion, Boston.
L. J. Cummins, Boston.
Lincoln Davis, Boston.
W. H. Devine, South Boston.
Channing Frothingham, Jr., Boston.
J. E. Goldthwait, Boston.
W. C. Howe, Boston, M.N.C.
J. C. Hubbard, Boston.
H. T. Hutchins, Boston.
E. A. Locke, Boston.
F. T. Lord, Boston.
F. B. Lund, Boston.
G. B. Magrath, Boston.
E. H. Place, Boston.
Edward Reynolds, Boston.
Stephen Rushmore, Boston.
D. D. Scannell, Boston.
C. M. Smith, Boston.
E. W. Taylor, Boston, C.
L. P. Tingley, Boston.

WORCESTER.

G. E. Emery, Worcester, V.P.
F. H. Baker, Worcester.
W. P. Bowers, Clinton, Ex-P.
L. R. Bragg, Webster.
W. J. Delahanty, Worcester.
G. A. Dix, Worcester.
M. F. Fallon, Worcester.
Homer Gage, Worcester.
David Harrower, Worcester, M.N.C.
E. L. Hunt, Worcester.
A. W. Marsh, Worcester.
L. C. Miller, Worcester.
C. B. Stevens, Worcester.
G. O. Ward, Worcester.
F. H. Washburn, Holden.
S. B. Woodward, Worcester, Ex-P.

WORCESTER NORTH.

J. G. Henry, Winchendon.
H. R. Nye, Leominster, M.N.C.
A. H. Quessy, Fitchburg.

The Secretary read the minutes of the last meeting and they were approved.

The Secretary read the names of the Nominating Committee by districts, the following answering to their names:

BARNSTABLE,	MIDDLESEX SOUTH,
W. D. Kinney,	E. H. Stevens,
BERKSHIRE,	NORFOLK,
P. J. Sullivan,	D. G. Eldridge,
BRISTOL NORTH,	NORFOLK SOUTH,
F. A. Hubbard,	G. M. Sheahan,
BRISTOL SOUTH,	PLYMOUTH,
R. W. Jackson,	W. C. Keith,
ESSEX NORTH,	SUFFOLK,
T. R. Healy,	W. C. Howe,
ESSEX SOUTH,	WORCESTER,
W. T. Hopkins,	David Harttrower,
FRANKLIN,	WORCESTER NORTH,
G. P. Twitchell,	H. R. Nye,
MIDDLESEX EAST,	
Ralph Putnam,	

The Nominating Committee retired.

The President made the following remarks:

The end of our year has been marked with sadness. On April 15 died Edward John Brearton of Dorchester, a member of the Council, in the full possession of his faculties, at the age of 44. He was educated in the public schools of Boston, graduated from Tufts College Medical School, was a member of the A. E. F., returned with the commission of captain, and resumed his practice in Dorchester. A quiet, unpretentious local practitioner, he has been sorely missed in the locality in which he practised.

Yesterday morning died another Councillor, Edward Hall Nichols of Boston. He was born in 1864 in Reading. Always taking a prominent place in the life where he was situated, a prominent part in college activities from first to last, assuming always a position of leadership, able, fearless, impetuous, farnk to a fault, the affection for him in the minds of all of us here is too ripe for me to speak without emotion at our sudden loss.

The year just ended has been a successful year in many ways for the Society. We have passed the 4,000 mark in membership. The duties of the President have been happy duties, especially the ones which brought him in contact with the outlying districts, where he feels that a great deal of helpful work is being done for the welfare of the Society at large; and he comes back from his brief pilgrimages to these districts with a conviction that the tendency of the Society is to become a little bit top-heavy in its membership, that we don't do enough here to bring the whole Society together, with

Suffolk District at 800—we will say—and with the two Middlesex Districts and Norfolk together surpassing that number, it makes an unfortunate concentration in the eastern border of the State. It makes the feeling a definite one in the smaller districts, where they perhaps have 40 members or less, as in Barnstable—it makes them feel a little bit remote in distance and in the matter of contact; and the President feels very much that the future of the Society hangs a great deal on the success of amalgamating all the interests and of creating some diversion. Dr. Alfred Worcester has already made a most valuable effort in that direction in the formation of group meetings. Those meetings should continue. They have gone well in the districts, and the districts are unanimous in wishing them to continue. Your President feels that it is highly desirable that similar meetings shall be held; but further efforts should be made to bring in the real interest that exists, but which feels, I am confident, a little bit aloof.

The committees appointed by the Council to consider the petitions of W. H. Blanchard and T. J. Brennan for restoration to the privileges of fellowship were read and were acted on favorably, it being voted that each be restored under the usual conditions. Committees were appointed to consider eight similar petitions for restoration, as follows:

For A. A. Pastene: W. H. Robey, Jr., G. S. Derby, W. T. S. Thorndike.
For W. A. Millet: J. B. Thomes, B. W. Paddock, C. T. Leslie.
For J. Z. Naurison: A. C. Eastman, M. B. Hods-kins, P. Kilroy.
For J. T. Buckley: R. W. Greene, W. F. French, R. J. Ward.
For W. H. Gallagher: H. T. Hutchins, C. Frothingham, L. Davis.
For H. A. Field: D. G. Eldridge, W. C. Kite, W. A. Lane.
For S. K. Pachanian: J. H. Lambert, C. S. Baker, N. Pulsifer.
For F. R. Tower: G. S. Hill, W. C. Howe, S. Rushmore.

Dr. S. B. Woodward presented the accompanying report of the Committee on Membership and Finance, as to Membership. It was accepted and its recommendations adopted:

REPORT OF THE COMMITTEE ON MEMBERSHIP AND FINANCE, AS TO MEMBERSHIP.

The Committee on Membership and Finance make the following recommendations as to membership:

1. That the following three Fellows be allowed to retire under the provisions of Chapter I, Section 5, of the By-Laws:
Hall, William Dudley, 416 Marlborough Street, Boston.
Hebbard, Ellery Cola, 122 Huntington Avenue, Boston.
Jenkins, Charles Edwin, 10 Ireson Street, Lynn.

2. That the following eleven Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the By-Laws:

Armstrong, Donald Budd, 570 Seventh Avenue, New York.
Barach, Alvan Leroy, 33 East 6th Street, New York.
Bell, James Francis, Jr., 903 Journal Building, Portland, Oregon.
Butler, David Mathew, 12 Cottage Street, Brookton, Mass.
Dearborn, George Van Ness, U. S. P. H. S. No. 42, Perryville, Md.
Eaton, Henry Douglas, Los Angeles, California, with remission of dues for 1921-1922.
Hodgdon, Frank Wellington, Jr., Pasadena, California, with remission of dues for 1920-1921.
Jaujigian, Robert Rupen, Wilkesbarre City Hospital, Wilkesbarre, Pa.
Jelalian, Hairabed S., Fresno, California.
Keown, James Archibald, 42 High Street, Lynn.
Kinne, George Lyman, 265 Maple Street, Holyoke.

3. That the dues for 1921, of Withington, Alfreda Bosworth, now of 23 Rue de la Paix, Paris, France, be remitted, she having been engaged on reconstruction work until August of that year.

4. That the following nine Fellows be allowed to change their district membership, without change of legal residence, under the provisions of Chapter III, Section 3, of the By-Laws:

Allen, Arthur Wilburn, from Norfolk to Suffolk.
Crawford, Francis Xavier, from Middlesex South to Suffolk.
Handy, Harry Tucker, from Plymouth to Norfolk South.
Jones, Chester Morse, from Middlesex South to Suffolk.
Meaker, Samuel Raynor, from Norfolk to Suffolk.
Moir, Marguerite Winifred, from Norfolk to Suffolk.
Parris, Roland Oliver, from Middlesex South to Suffolk.
Siragusa, James Joseph, from Norfolk to Suffolk.
Wood, Nelson Merwin, from Norfolk to Suffolk.

Respectfully submitted, for the Committee on Membership and Finance,

SAMUEL B. WOODWARD, *Chairman*.

Dr. Woodward prefaced his report with a personal statement on relinquishing the office of chairman, concerning his services to the Society since the year 1888 in the offices of delegate, vice-president, membership in the standing committees on scientific papers, ethics and discipline, state and national legislation, membership and finance, and as president for three years; he regretted that pressure of other work prevented him from further service; he cherished an abiding interest in the Society, and would continue to be a Councilor by virtue of being an ex-president, under the terms of the By-Laws. He read the following report of the Committee on Membership and Finance, as to Finance:

REPORT OF THE COMMITTEE ON MEMBERSHIP AND FINANCE, AS TO FINANCE.

On February 1st, 1922, the Council *Voted*, That a motion of Dr. E. H. Bigelow, Chairman of the Committee on Public Health, be referred to the Commit-

tee on Membership and Finance for consideration, this Committee to report back to the Council at this time.

Dr. Bigelow's motion, as transmitted to the Committee on Membership and Finance by the Secretary, read as follows: "Moved, that the Council authorize the expenditure of a sum of money, not to exceed twenty-five hundred dollars (\$2500), for the investigation of health problems in relation to the care of the sick in rural communities in Massachusetts, to see if conditions can be improved; such money to be expended by the Committee on Public Health, should investigation by said Committee demonstrate the need of such work by the Massachusetts Medical Society; all expenditure for this work to be subject to the approval of the President of the Society and the Chairman of the Committee on Membership and Finance."

The vote of the Council was: "That the entire matter be referred to the Committee on Membership and Finance for a report at the next meeting of the Council, with the understanding that the Committee on Public Health will present to said Committee on Membership and Finance, at an early date, a definite, detailed plan for the expenditure of the appropriation asked for."

At a meeting of the Committee on Membership and Finance, held on June 5th, the following vote of the Committee on Public Health was presented to them: "164 Longwood Ave. Public Health Committee, M. M. S., etc., June 6th, 1922. *Voted*, That this Committee ask for \$2500 to finance a field agent to study conditions in rural communities looking toward the development of laboratories and hospital facilities for the mutual benefit of the physicians and the citizens.

(Signed) ANNIE LEE HAMILTON,

Secretary of Committee on Public Health."

This vote of the Committee on Public Health was thoroughly discussed, and the chairman was directed to report to the Council that the Committee on Membership and Finance feel that a properly made survey on these lines might be of value and might at least settle the question whether any action by the Society, or of the community was necessary to remedy conditions now existing; that the Committee believe there may be important work to be done in this direction and that the treasury of the Society is in such condition that the appropriation asked for, namely \$2500, might be made, but failing to find in the only communication received from the Committee on Public Health such a definite, detailed plan as seems called for by the vote of the Council, the Committee on Membership and Finance must report to the Council that from any information as yet furnished them, they do not feel authorized to recommend the expenditure of money.

Respectfully submitted for the Committee on Membership and Finance,

SAMUEL B. WOODWARD, *Chairman*.

Dr. E. H. Bigelow, chairman of the Standing Committee on Public Health, called attention to the fact that his committee had made a report in the official organ of the Society in the issue of May 11, 1922, stating in that report that the Committee could not give a detailed financial estimate of what the proposed work in rural communities called for, according to the vote of the Council last February; he apologized to the Chairman of the Committee on Membership and Finance for not calling his

attention to the report; the committee proposed to put a hard working field agent through the state to survey the field and report. He then read his report for the Committee on Public Health for the past year. (See Appendix No. 1.) Dr. W. A. Dolan moved, and it was seconded, that the report of the Committee on Membership and Finance, as to Finance, be accepted and its recommendations adopted. Dr. Bigelow offered an amendment to the effect that the report be accepted without adopting its recommendations. Seconded. The amendment, being put to a vote, was lost. The Chair explained that the way was open for a reference of the matter back to the Committee on Membership and Finance for a further report by that Committee to the Council. Dr. Bigelow moved to amend Dr. Dolan's motion by adding the words "that \$2,500 be granted to the Committee on Public Health to finance a field agent to study health problems in rural communities." The Chair ruled that such a motion to amend was out of order because it constituted an extraordinary appropriation, which, under the By-Laws, must be referred, before action, to the Standing Committee on Membership and Finance. Dr. Dolan's motion was then put to a vote and passed. Subsequently the report of the Committee on Public Health was accepted by vote.

Dr. C. F. Painter, Chairman of the Standing Committee on Medical Education and Medical Diplomas, read the report of his Committee and also the report of the Delegate, a member of his Committee, to the Conference on Medical Education at Chicago in March, 1922. (See Appendix No. 2.) The President stated that he himself had had a most successful trip to Chicago as a delegate to the Conference on Medical Legislation; he would not report at length because of the lack of time; he favored sending two delegates each year to keep in touch with what was going on in the country at large. The reports were accepted by vote. Dr. Painter presented a revised list of medical colleges, diplomas from which are accepted by the censors from candidates for fellowship, in accordance with the vote of the Council, February 1, 1922. He said that two additions had been made to the previous list and all the medical schools and colleges of the United States and Canada that are approved had been arranged alphabetically instead of by states, as in the past. *Voted*, That the revised list of medical colleges be adopted. The list as printed is a part of this record. Dr. J. S. Stone, Secretary of the Standing Committee on State and National Legislation, read the report of that Committee for the past year and it was accepted. (See Appendix No. 3.) In accordance with the recommendation of this Committee, Dr. S. B. Woodward, who first called the

attention of the Council to the limited amount of income the Society might hold, under the terms of Article X of the Digest, at the meeting of the Council, February 2, 1921, introduced the following motion:

Moved, That the Society be requested to appoint at the Annual Meeting a committee who shall petition the next General Court to enact an amendment of Chapter 15, Section 9, of the Statutes of 1781, so that said statute shall conform to the provisions of Chapter 180, Section 9, of the General Laws of Massachusetts, 1921, relating to charitable corporations, as regards the amount of real and personal property the Society may hold; the intention of this motion being that the proposed amendment shall be submitted for approval to the Council at its October meeting.

The motion, having been seconded, was put to a vote and passed unanimously.

Dr. Homer Gage, Chairman of the Committee of Nine, having charge of the BOSTON MEDICAL AND SURGICAL JOURNAL, reported that the JOURNAL was in a satisfactory condition; he paid tribute to the unselfish labors of the managing editor, Dr. W. P. Bowers, and predicted that before long the JOURNAL could be furnished to the Society for a decreased cost. He presented a financial statement by a certified public accountant of the finances of the JOURNAL from April 1, 1921, to December 31, 1921. (See Appendix No. 4.)

Dr. Walter P. Bowers, who was received with applause, read the report of the Committee on Maternal and Infant Welfare (See Appendix No. 5) which was accepted and its recommendations adopted.

Dr. Edward Reynolds presented the report of the Committee on Cancer (See Appendix No. 6) and it was accepted with the understanding that in future Dr. R. B. Greenough would be Chairman of this Committee.

The Secretary read the following nomination and it was automatically referred to the Committee on Membership and Finance under the provisions of Chapter I, Section 4 of the By-Laws:

Waltham, May 18, 1922.

To the Council of the Massachusetts Medical Society:

Dear Sirs: Under the provisions of Section 4, Chapter I, of the By-Laws, we hereby nominate General Leonard Wood, Governor-General of the Philippine Islands, as an honorary member of the Massachusetts Medical Society.

(Signed) ALFRED WORCESTER,
FREDERICK L. JACK,
HENRY JACKSON.

Dr. A. P. Merrill of Pittsfield reported for the delegation to the annual meeting of the Connecticut State Medical Society at Bridgeport, May 17 and 18, 1922. Both he and his fellow Delegate, Dr. G. L. Chase of Clinton,

were present at a meeting that they thought to be valuable and instructive. They commended the custom in the sister state of having reports from the secretaries of the district societies at the annual meeting of the Society; it made for rivalry and a keeping up of efficiency. Connecticut is aroused at present over the licensing of poorly trained practitioners by an elective board of licensure. Dr. George A. Moore of Brockton reported on his attendance at the annual meeting of the Rhode Island Medical Society at Providence, June 1, 1922. He read the program of the meeting and spoke of the custom of giving out a subject for original work for a prize for a year ahead. This year the subject was Radium Therapy. The meeting was most enjoyable and profitable.

Dr. W. P. Bowers offered the following motion, which was seconded and passed: *Moved*: That a committee of three be appointed by the Chair, the President to be the Chairman, to negotiate with the other medical societies of New England for the purpose of holding a combined meeting of all the New England medical societies at some time in the future.

The Chair nominated and the Council elected the following to fill vacancies in offices of the Society: E. J. Welch, Lowell, as Nominating Councillor for Middlesex North; C. F. Canedy, Greenfield, as censor for Franklin; J. D. Collins of Northampton, as censor for Hampshire; F. H. Lahey as censor for Suffolk.

The Secretary read a letter from the Maine Public Health Association to the President asking for a representative from the Massachusetts Medical Society to act in an advisory capacity to the Program Committee of the New England Conference on Tuberculosis, to be held at Poland Springs, September 28 to 30, 1922. The President nominated and the Council appointed Dr. Sumner H. Remick of Reading to this position.

Dr. W. T. Hopkins, in the absence of the Chairman, read a report of the Committee on Workmen's Compensation Act. The report was accepted and its recommendation, namely, that the Committee be discharged, was adopted. (See Appendix No. 7.) Dr. A. K. Stone made a verbal report for the Committee on Industrial Health Insurance. He said that in the absence of legislation the Committee had had no meetings. He advised that the Committee be discontinued, and it was so voted.

Dr. C. E. Mongan asked for authority to establish a Section of Obstetrics and Gynecology, under the terms of Chapter IV, Section 5, of the By-Laws. He moved, and it was seconded, that such a Section be formed, the selection of the Chairman and the Secretary

of the new Section to be left to the President, and it was so voted.

Dr. B. P. Croft of Greenfield presented the following resolutions at the instance of the Franklin District Society. They were seconded and carried.

RESOLUTIONS OF THE FRANKLIN DISTRICT MEDICAL SOCIETY.

Resolved, That the members of the Franklin District Medical Society, recognizing the great importance of closer contact of the District Societies with the parent body of the Massachusetts Medical Society through the medium of the Council, believe that such contact would be facilitated if the distance to the meeting place and the financial cost of reaching same were more equally distributed, and, therefore, we recommend that our Council members offer and support the following motions, provided that their subject matter has not already been acted upon, or that they are not unconstitutional:

1. That one or more of the Council meetings be held in Springfield, or Worcester.
2. That the expense of carfare of all Council members attending the Council meetings be paid from the treasury of the Massachusetts Medical Society.
3. That the Treasurer of the general Society prepare an estimate of the approximate cost of carrying out the purpose of this resolution, the basis of such estimate to be the average attendance at each annual meeting for the past three years, deducting the amount paid for mileage to supervising censors for attendance at their annual meetings.

Resolved, That previous to final action by the Council, a copy of this resolution be transmitted by the Secretary of the Massachusetts Medical Society to the Secretaries of all District Societies, with the request that its subject matter be acted upon at meetings of the respective societies, and the result of such action be communicated to the Council through the Secretary.

Dr. Mongan asked what is the meaning of "public health." He thought it confusing to the average practitioner to define the term, also what is a "public health nurse" and "what are her functions." He moved and it was voted that the definition of these terms be referred to the Committee on Public Health for a report at the next meeting.

The President read a letter from Mr. George R. Wakefield of Spencer concerning a permanent memorial to Dr. William T. G. Morton at Charlton, his birthplace, soliciting coöperation in raising funds. On motion the matter was referred to the Committee on Membership and Finance.

The names of the officers and orator nominated by the Nominating Committee were placed on the blackboard and on proceeding to ballot Dr. Croft stated that the following ticket received 87 votes and they were declared elected. While the balloting was in progress the President nominated and the Council appointed the following Standing Committees for the ensuing year:

OFFICERS OF THE MASSACHUSETTS MEDICAL SOCIETY. ELECTED BY THE COUNCIL, JUNE 13, 1922.

PRESIDENT: John W. Bartol, 3 Chestnut Street, Boston.

VICE-PRESIDENT: Charles E. Morgan, 24 Central Street, Somerville.

SECRETARY: Walter L. Burrage, 42 Eliot Street, Jamaica Plain.

TREASURER: Arthur K. Stone, Auburn Street, Framingham Center.

Librarian-Emeritus: Edwin H. Brigham, 8 The Fenway, Boston.

STANDING COMMITTEES FOR 1922-1923.

ELECTED BY THE COUNCIL, JUNE 13, 1922.

OF ARRANGEMENTS,

K. G. Percy, F. J. Callanan, Dwight O'Hara, J. C. Rock, L. S. McKittrick, W. T. S. Thorndike.

ON PUBLICATIONS AND SCIENTIFIC PAPERS.

E. W. Taylor, R. B. Osgood, F. T. Lord, R. M. Green, A. C. Getchell.

ON MEMBERSHIP AND FINANCE,

D. N. Blakely, A. Coolidge, Samuel Crowell, Gilman Osgood, Homer Gage.

ON ETHICS AND DISCIPLINE,

Henry Jackson, T. J. Robinson, David Cheever, F. W. Anthony, W. D. Ruston.

ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS,

C. F. Painter, J. F. Burnham, A. G. Howard, R. L. DeNormandie, H. P. Stevens.

ON STATE AND NATIONAL LEGISLATION,

J. W. Bartol, E. H. Stevens, F. E. Jones, J. S. Stone, T. J. O'Brien.

ON PUBLIC HEALTH,

E. H. Bigelow, Annie L. Hamilton, E. F. Cody, Victor Safford, R. I. Lee.

COMMITTEE OF NINE, FOR THREE YEARS.

W. H. Robey, Jr., R. I. Lee, R. B. Osgood.

Adjourned at 2.25 P. M.

WALTER L. BURRAGE,
Secretary.

APPENDIX TO PROCEEDINGS OF THE COUNCIL.

APPENDIX No. 1.

REPORT OF THE COMMITTEE ON PUBLIC HEALTH.

This Committee has met once a month throughout the year for the discussion of various methods of improving health conditions in Massachusetts.

The matter of holding a convocation in Worcester seemed well worth while, and the different ways of making such a convocation a success were studied in some detail, but the project was finally given up, as the great need seems rather to be that of the small towns. The Committee feels that the need of the doctors in these small towns is for some form of post-graduate work, to be carried on as near the locality of the country physician as possible. The various institutions, State and community hospitals, hospitals for the tuberculous, the feeble-minded, or the insane, might well be chosen for the place of meeting. Clinical material near at hand could then be made use of. Certain days might be chosen for clinic days, when a patient might be taken by his physician and several opinions obtained. In January, the work of the Committee to "Investigate Health Problems in Relation to the Sick in Rural Communities" was referred to the Public Health Committee. The conclusion of this Committee, after painstaking

investigation, seems to coincide with the above. A report, outlining a plan for financial expenditure to carry on the work, was published in the *Boston Medical and Surgical Journal*, May 11, in part as follows:

"The Committee feels that a proper field agent could undoubtedly accomplish a great deal, directly and indirectly, for the advantage of the rural communities. The data collected by such a field agent would be of considerable service to the practitioners of the Massachusetts Medical Society, because there would be some menus, perhaps, mainly through the *Boston Medical and Surgical Journal*, for the interchange of valuable suggestions between isolated practitioners, who are meeting the same problems in presumably different fashions. The Committee feels that these data might be of great value in the establishment of some policies in regard to the rural communities which might have the support of the Medical Society. These policies would include, obviously, the problems of the encouragement of the establishment of small central hospitals according to the needs and the development and utilization of certain facilities, such as laboratory facilities for the benefit of the local practitioners, and thereby, of course, of the local communities. The Committee realizes that this is a very bare outline of a plan, but submits it for consideration. The Committee feels that the sum of \$5000.00 would be necessary for the payment and the expenses of a field agent, who would be capable of doing this work satisfactorily."

DEMONSTRATION OF THE SCHICK TEST.

At an early meeting the question of continuing the work of extending the knowledge of the Schick Test was discussed, and Dr. Joseph Garland was asked to carry the demonstrations to cities and towns in Eastern Massachusetts. It has been found that in some instances the technique of the Test was faulty, an incorrect reading resulting in some cases, and bringing discredit to this valuable method of deciding whether an individual is, or is not, immune to diphtheria. If properly done, and toxin antitoxin administered to the susceptible children, the morbidity of diphtheria should be as controllable as that of smallpox, with practically no mortality. Dr. Garland has been demonstrating this work for two years. His report since June, 1921, is as follows:

REPORT OF DR. JOSEPH GARLAND ON THE SCHICK TEST.

Following is the information you requested concerning my Schick activities. The 1921 Spring campaign ended on the last of May, so is not included in your current year. Starting December 22, 1921, and ending March 28, 1922, the following demonstrations were given: Framingham Hospital, Boston (physicians' children), Wakefield, Boston (Middlesex South Society), Deaconess Hospital, Concord; Anna Jaques Hospital, Newburyport; Clinton; Jordan Hospital, Plymouth; Heywood Memorial Hospital, Gardner; Massachusetts General Hospital Nurses' Alumnae Association. Figures furnished by the State Antitoxin Laboratory show the increase in output of toxin-antitoxin as follows:

June, 1921	661 c.c.
July	366 c.c.
August	272 c.c.
September	587 c.c.
October	1947 c.c.
November	2658 c.c.
December	3054 c.c.
January, 1922	5902 c.c.
February	3785 c.c.

It is to be trusted that our campaign had some influence in increasing these figures. Of course, it must be remembered that the State Department of Public Health has been very active during this period in furthering diphtheria prevention by these pro-

(Signed) J. GARLAND.

LECTURES ON PUBLIC HEALTH SUBJECTS.

The list of lecturers and their topics, as published frequently throughout the year in the *BOSTON MEDICAL AND SURGICAL JOURNAL*, has been of service to some of the District Societies. We gratefully acknowledge our indebtedness to the men who rendered this gratuitous service. The Committee is always glad to assist in making arrangements for lectures, if desired.

Respectfully submitted,

(Signed) ANNIE LEE HAMILTON, *Secretary*.

APPENDIX NO. 2.

REPORT OF COMMITTEE ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS.

The Annual Report of this Committee divides itself into three subjects; first, assisting the Censors in determining the eligibility of candidates who would present themselves for examination for membership in the Society; second, report of the delegate sent by the Society to represent them at the Chicago meeting of the Council on Medical Education of the American Medical Association; third, sponsoring and endeavoring to promote legislation looking to the elevation of the standards required by the State Board of Registration in Medicine.

In respect to the first of these activities of the Committee, it has had about the usual amount of work to do. We have passed upon the eligibility of 14 candidates, permitting nine to come before the Censors and rejecting five. There has been little of interest in this connection except that the investigation of one candidate disclosed the fact that he was illegally practicing in this State, having failed to pass the State Board. The other matter was that of an osteopath who sought permission to take the Censors' examination and was rejected because he did not possess the degree of doctor of medicine, though in the opinion of some who knew him well, he is better equipped to practice than many who are "carrying on" in the full possession of all legal authorizations to do so. Personally my sympathy was with the candidate and he had no difficulty in procuring support from a distinguished group of practitioners in the district where he resides. There was nothing, however, to do, as our Society Rules provide for the awarding of the opportunity to come before the Censors for examination only to men who are regularly graduated from an acceptable medical school, and this he could not show.

The educational system under which we qualify to do business as professional men is so complicated that it is very difficult at times to "see the woods for the trees." All along the line injustice is being done, far more frequently than most of us know, because a matter has to be decided in accordance with a hard and fast rule from which there is no appeal to a body that is human and judicial and could weigh a case on its merits. This applies to the admission to and continuance in the medical schools of those whose preparation has, for one reason or another, been a little bit irregular. We speak of these things in this respect because we believe that the membership of this Society "by and

large" is not as conversant as they should be with respect to the requirements now being exacted of those who enter the medical schools; of the proportionate adjustment of the subjects required by the curriculum; of the methods of teaching now in vogue, and many other questions of vital importance to the maintenance of a standard of training which shall yield, first of all, a sound, sane body of general practitioners with, secondly, just enough specialists to attend to the particular circumstances which will arise in the experience of the larger group of general practitioners, requiring superb skill in treatment and occasionally in diagnosis; thirdly, this system of training will provide for those who are fitted and desire to qualify by special preparation for it, to enter positions in medical schools, either in high clinical professorships or in practical laboratory departments. We believe that the medical profession should be drawn more closely together than it now is, and that one way of doing this is by providing the means by which some of these fundamentals of medical practice should be kept before the profession as assiduously as the latest wrinkles in the toilette of the peritonium are forced upon its attention. In whatever way this much-to-be desired end may be reached, it is certain to have a very beneficial influence upon the organization of the profession into a machine when necessary, to combat or promote legislation, hostile or favorable, as the case may be, to the interests of the medical profession and the public, where its health interests are involved. And it is this thought that is suggested by the third division of this report; viz., the medical educational interests of this Society as affected by legislation.

An intelligently awakened interest on the part of the profession in all matters which are the subject of legislative enactment is, we are convinced, the only way that results favorable to the interests of the schools, the public, and the profession may be secured. Before passing to the next subject, it should be said that a new list of acceptable medical colleges, revised to May, 1922, will soon be ready for distribution.

This year, as most of you know, the Committee introduced into the House "House Bill 955," which called for two years of pre-medical work, in addition to an acceptable four-year high school course, and specified the number of hours to be spent by the student in the study of the prescribed pre-medical subjects of Physics, Chemistry, Biology, a modern language and English, all of college grade. In addition, it was provided that he should, upon completing his course, spend one year as interne in a hospital of at least twenty-five beds. Two outstanding facts in regard to our efforts to secure this legislation are conspicuous. In the first place, we were not given "Leave to Withdraw," and a much emasculated bill, "House 1315," was enacted. It is the belief of most of the Committee of Public Health in the House and Senate that even under the old law, the Board of Registration had all the power it needed to control the licensing of practitioners at as high a grade as they chose to set. The bill as passed is an improvement on the old law in that it makes provision for a minimum educational requirement for matriculation in a medical school, the equivalent of a four-year high school course, and the board must examine in the science subjects required in the original bill to such an extent as to satisfy them that the candidate is sufficiently acquainted with these subjects. It is of course far from that for which we contended. The disadvantages of it from a practical point of view have been well pointed out by the Editor of the *BOSTON MEDICAL AND SURGICAL JOURNAL* in an editorial

appearing in a recent issue of that paper. In the second place, there has rarely been a Committee of Public Health in the General Court or a body of Legislators so systematically approached and made acquainted with the fact that the medical profession was really alive to a subject upon which they naturally have opinions. We are confident that by carrying out more thoroughly the methods employed in reaching the individual legislator that much more effective support may be secured for medical legislation in the future. I am going to speak plainly, for I believe the issues involved justify it. We are convinced that the little we did accomplish this year was due to the response which certain sections of the Society gave us through local concerted action. Somerville, Lowell, Newton, Abington, Springfield, Pittsfield, Newburyport, Northampton, and the physicians in the vicinity of these towns must be credited with bringing about a feeling in the Legislature that convinced that body that the medical profession was back of what was being asked for in the bill, and they did not this year throw it out of court. I regret to state that from scarcely any other section of the Commonwealth did we get any active support in our campaign. We asked for returns on the questions proposed and sent to every local branch of the Society.

Aside from those mentioned, we heard from none except Fall River and Greenfield, where there was an opinion adverse to the proposal of the Committee. This, of course, we are not criticising; on the contrary, we welcome it. What we do complain of is the negligence or unwillingness to coöperate in some way with those who are endeavoring to remedy a situation which is discreditable to the State of Massachusetts and its organized medical profession. Some machinery has been provided for bringing into action the enlightened professional opinion of the doctors of the Commonwealth. A more universal willingness to make use of this machinery is desirable, and when in the future it becomes necessary to marshal the influence of the medical profession on Beacon Hill, it is to be hoped that the Society will find an even more generous response than we received this year.

CHARLES F. PAINTER, *Chairman*.
J. FORREST BURNHAM.
ALONZO G. HOWARD.
ROBERT L. DENORMANDIE.
HORACE P. STEVENS.

REPORT OF THE DELEGATE TO THE ANNUAL CONGRESS ON MEDICAL EDUCATION, CHICAGO, MARCH 6 TO 7, 1922.

The Congress began on Monday, March 6, at the Congress Hotel, Chicago, with a large attendance representing all parts of the United States and Canada. The meeting was opened by Dr. Arthur Dean Bevan, of Chicago, the President, who spoke on the necessity of a constructive program for medical education. He reviewed briefly the work of the Council on Medical Education for the past twenty years and quoted at length from a report of President Henry S. Pritchett in 1921, of the Carnegie Foundation. This report stressed the importance of the close inter-relationship of the medical school, the hospital and the dispensary, and described the ideal type of teaching hospital. Dr. Bevan also discussed the importance of the element of time in the construction of a medical curriculum, but showed that saving of time must not be at the expense of a rational premedical course, or of a year of hospital internship.

The next paper of the morning was by Dr. N. P.

Colwell, of Chicago, the Secretary of the Council, on "Problems Resulting from the Recent Improvements in Medical Education." This paper dealt with the increased cost of a medical education, the necessity for limiting the enrollment of students in the medical schools, the rapid turn towards specialization in the practice of medicine, the increased development in graduate clinics, the rapidly growing demand for hospitals and the increase in their number, the demand for interns, and the shortage of physicians in rural communities.

This paper was followed by a report on the undergraduate medical curriculum, "What Subjects if any, should be transferred to the Graduate Medical School," by Dr. Ray Lyman Wilbur of Palo Alto, Calif. After discussing the essential aims of undergraduate medical teaching, and something of the weakness of present methods, he explained his ideas in somewhat this form: 1. Push some clinical work as far back into the medical course as possible to heighten the interest of the student. 2. Divide up the last two years between general medicine and pediatrics, including the mental diseases, 40%; general surgery, 30%; obstetrics and general gynecology, 10%; hygiene and public health, 5-10%; optional work, 10-15%. 3. Bring the laboratories into closer conjunction with the clinics. 4. Have the clinician in his course cover subjects now handled by specialists, bringing the specialists in to help him; 5. Have more coördination in the courses to avoid reduplication. 6. Make hospital experience with responsibility a requirement for graduation. 7. Keep the spirit of research alive all along the line in the medical course.

Dr. Hugh Cabot of Ann Arbor, Mich., read a report of the Committee on Education and Pedagogics, "A New Curriculum." This paper, after emphasizing the increasing tendency to rigidity in the present curriculum and showing how little opportunity there is for the student to progress according to his individual talents and ability, presented a new curriculum in tabular form in which the requirements, instead of being set down as so many hours for each subject, were put in the form of percentages giving a reasonable range for variation to meet individual needs.

Discussion was then thrown open on all the morning papers, including remarks by Dr. William Darrach of New York, Dr. E. P. Lyon of Minneapolis, Dr. David L. Edsall of Boston, Dr. Alexander Primrose of Toronto, Dr. H. Gideon Wells of Chicago, Dr. C. R. Bardeen of Madison, Wis., Dr. Alexander C. Abbott of Philadelphia, Dr. Nathaniel Allison of St. Louis, Dr. C. A. Hannon of Cleveland, Dr. Walter L. Biering of Des Moines, Dr. Charles P. Emerson of Indianapolis, Dr. Lewis B. Wilson of Rochester, Minn., Dr. Frank Billings of Chicago, Rev. C. B. Moulhier of Milwaukee, and Mr. Wallace Butterick, President of the General Education Board of New York. This discussion, approaching the subject from many different angles, was very interesting.

The afternoon session opened with a paper by Dr. C. P. Howard, of Iowa City, on "The Function of the Hospital in Medical Education." This paper dealt with the need of hospital beds for the teaching of the clinical branches, just as the dissecting room is required for the teaching of anatomy, and the laboratory for physiology. The clinical lecture has still, no doubt, a place in the curriculum, but its place is constantly growing less prominent in most of the modern medical schools. The writer stressed the importance of hospital instruction from the point of view of the student, and described what was being done at the University of Iowa, where, owing to state laws which provide for indigent adults and children, the University Hospital has been able to

expand from 125 beds in 1910 to 550 in 1922 without appreciably increasing the financial burden of the Medical School and University.

The next paper, by Dr. E. P. Lyon, of Minneapolis, described in detail the student internship system which has been put in practice at the University of Minnesota. This system is dependent upon a plan in practice during the past two years of dividing the school work into quarters. Half of the students from the class at the end of the sophomore year proceed straight ahead for six quarters without any long vacation. There is a vacation of four weeks in September. The other half takes two vacations of three months each, the regular amount. The first division, therefore, gets six months ahead. The result is that (1) about half of the students save six months in the medical course, (2) classes are graduated twice a year, in December and June, and (3) the hospitals have teaching twelve months of the year. In the first six months of the student internship there is a period of clerkship in which the student gets experience in the methods of examination, history writing, laboratory tests, etc. In the last six months of the senior year, there are only six lectures a week arranged on two afternoons. The rest of the work is elective. The student internship is the elective chosen by most of the class. As the University of Minnesota requires a hospital year following the four-year course for a degree of doctor of medicine, the student internship is so arranged to naturally lead up to the graduate internship which follows it. A questionnaire sent to students educated under this system showed, of 105, 99 had elected student internship and 6 took other electives of research in place of it. Of the 99, all but 3 in the light of subsequent experience would again choose student internship. Of the 6 who did not have student internship, 2 wished they had. The others mostly took research work.

Dr. L. S. Schmidt, of San Francisco, read a paper on "The Fifth Year Requirement as an Essential to Graduation." He went over the present requirements of existing medical schools and state laws in this regard and then described the system at the University of California, where the fifth year may be taken in any of the major departments of the Medical School or in any approved hospital or laboratory. If laboratory work is elected, it may be taken at any time after the first half year, provided the student has creditably completed his required work in the subject in which he desires to fulfil his fifth year requirement. The school has an arrangement with the Hooper Foundation for Medical Research, whereby he may take his laboratory work in that institution. In case hospital internship is chosen, the school provides blank forms which indicate the available internships and contain an agreement to accept the internship assigned and to remain throughout the period indicated. The hospitals to which interns are assigned must agree that each student shall be under the supervision of a member of the staff of the hospital and that the year's work must be under continuous approval by the medical board, and that the hospitals shall at all times conform to the requirements of the Council on Medical Education and Hospitals of the American Medical Association, and that reports shall be sent to the Dean's office quarterly and on exchange of service.

Dr. J. C. Litzberg, of Minneapolis, then read a paper on the experience at the University of Minnesota with the requirement of the intern year as a prerequisite for the degree of doctor of medicine. The system at Minnesota permits the student to select his own hospital as far as possible, provided that hospital meets with the requirements of the school. The school undertakes to guarantee internships and a committee secures enough places so

that all the students can be accommodated. The internship is looked upon as a contract on the part of the student to fulfil the requirements of the hospital, and on the part of the hospital to give the student as much instruction as is required by the school. The system has worked out very successfully.

Discussion of the afternoon papers was entered into by Dr. John M. Dodson of Chicago, Dr. Arthur D. Bevan of Chicago, Dr. Frank Billings of Chicago, Dr. George M. Kober of Washington, Dr. John A. Witherspoon of Nashville, Tenn., Dr. I. D. Metzger of Pittsburg, Dr. T. J. Crowe of Dallas, Texas.

The morning session of the second day, Tuesday, March 7, opened with a paper by Dr. Charles P. Emerson of Indianapolis on "Professors and Clinical Professors of Clinical Subjects." This was a study of what should be the proper qualifications for a real clinical professor. A thorough training in the premedical and preclinical sciences and approved ability as a laboratory research worker in at least one of these scientific subjects. But intellectual brilliancy and proved research ability, essential though they are, are not enough. They may be enough for a professor, but not for a clinical professor. The art of medicine is also necessary. This is possessed by some but not by all as a natural endowment which can be developed with experience. A third quality which the professor may not need, but which is just as necessary to the clinical professor is that sympathy for the sick patient, that love of fellow man which originally prompts him to dedicate all of his powers to the profession. Some preclinical teachers would seem to believe that clinical medicine is merely the application at the bedside of the preclinical sciences, and that the student who has mastered these sciences has covered a considerable portion of the field of medicine. While a man well trained in premedical sciences can gain for himself a much wider and firmer grasp of clinical medicine, there is no real overlapping of these two fields.

In the discussion of this paper, Dr. Alexander Trimrose of Toronto described the scheme at the University of Toronto, where through a system of graded hospital services, both clinical and laboratory, promising men are trained with the idea of developing just such men as Dean Emerson has suggested in his paper.

The next paper by Dr. Hans Zinsser of New York was on "The Introduction of Public Health Information into the Undergraduate Medical Curriculum." There is an increasing demand for highly trained specialists in public health, a need which is being answered by schools of public health recently established. However successful the education of such leaders and specialists may be, the entire structure of organization for preventive measures will fail unless the practicing medical profession is alert to its obligations, and in this regard, capable of meeting them. While some lectures on public health administration problems, social service, quarantine, etc., may be necessary, the greater part of this work should be accomplished by the teachers in the other subjects of the curriculum, but should coordinate the teaching of public health in its relation to the subject which they cover. Thus, courses in bacteriology should cover the subject of immunology, and in the courses of clinical medicine the basic principles of social service and public health nursing should be included in the dispensary work and the principles of isolation, quarantine, epidemiologic information, etc., should be dealt with in teaching the care of infectious diseases.

Dr. Alexander C. Abbott of Philadelphia, Dr. David L. Edsall of Boston, Dr. John A. Ferrall of New York, Dr. John M. Dodson of Chicago, Dr. George M. Kober of Washington, Dr. John C. Fitzgerald of Toronto spoke in discussion of this paper.

The next paper, by Dr. J. T. McClintock, of Iowa City, was on "Teaching Facilities: Report of Com-

mittee on Equipment." This paper discussed the increased expense of building facilities, equipment and the needs of sufficient variation in the standard required to allow for reasonable changes in teaching methods, etc. He also spoke of the saving that could be effected by the avoidance of reduplication of laboratory and clinical equipment.

The paper was discussed by Dr. Henry Pate of Cincinnati.

The afternoon session opened with a paper on "The Cost of Medical Education to the Student," by Dr. Irving S. Cutter of Omaha. This paper was largely statistical and showed the results of a questionnaire sent to the students in each of the four medical years at the Universities of Indiana, Iowa, Maryland, Michigan, Nebraska, Syracuse and Virginia, and the Medical College of Virginia.

The next paper, on "Liberalization in Medical Education," was by Dr. A. C. Eycleshymer of Chicago. The products of medical schools may be considered as belonging to three principal groups—practitioners, investigators, and teachers. Lister, Pasteur, and Osler typify the groups. A few decades ago the country demanded and the schools furnished, for the most part, but one type of practitioner, and that type was the all round practitioner. The conditions of today are so different that the all round practitioner now would have been a specialist fifty years ago. The rural districts and small towns will be obliged to build and equip hospitals if they hope to obtain modern medical service. With the hospital goes the staff which in turn forms the basis of the group clinic. The rapid development of the group clinic is creating a situation which must be recognized by both the profession and the schools. One of the greatest needs in the medical schools today is the encouragement of students to devote their lives to the study of the causation and prevention of disease. How far can we organize research? We can help the young men to evince the spirit, but we cannot dominate him or restrain him. Those of us who come in contact with the men as they enter the medical schools are impressed by their differences in concept, habit and training. The fixed curriculum of half a century ago will not meet the conditions of today, yet in principle it has remained unchanged. The day is not far distant when schools must either incorporate in their curricula the particular requirements of each state board, or find that their graduates are not qualified to practice in some states. The one obvious solution is the creation of an elastic curriculum. It must be adjustable to instructional and clinical resources, it must anticipate the ever-changing conditions in the growth of medical science, and it must provide for collective teaching, coöperative study, individual study. We should determine as far as possible the special assets of each student at the time he enters the medical school and ever keep in mind his adaptability for certain kinds of work.

This paper was discussed by Dr. George M. Kober of Washington, Dr. William Keiller of Galveston, Tex., Dr. W. F. R. Phillips of Charlestown, S. C., and Dr. E. C. L. Miller of Richmond, Va.

H. P. STEVENS, *Delegate*.

APPENDIX NO. 3.

REPORT OF THE COMMITTEE ON STATE AND NATIONAL LEGISLATION.

The Committee are indebted to outside agencies for help in two important matters.

No bills to abolish animal experimentation were introduced this year, in spite of the fact that an interstate convention of those opposed to animal experimentation was held in Boston. This result is largely due to the very able presentation of the

truth by Mr. Baynes and the others who worked with him.

The bill to establish a special board for the examination and registration of chiropractors was introduced, was assigned a hearing at a late date, March 6th, and then, at the request of the proponents, was put over to the next annual session.

The medical profession of the State of New York were so ably opposing a similar measure introduced in Albany that it apparently seemed wise for the chiropractors to put off their fight in this state. An able lobby cannot work satisfactorily in two states at once. The bill is merely postponed in this state.

Vaccination again came up for consideration in the form of two bills, one to abolish compulsory vaccination as a prerequisite to attendance in the public schools, the other favored by the Committee to extend compulsory vaccination to the private schools. A year ago the bill to abolish compulsory vaccination passed the Senate. This year both bills were defeated. The opposition to compulsory vaccination this year was of a different character from that of recent years. Less was said of the evils of vaccination and more stress was laid upon personal liberty.

In connection with vaccination and chiropractic measures, it may not be amiss to call attention to the numerous articles appearing in a magazine called "Physical Culture," opposing vaccination, favoring spinal adjustments, and proposing rather novel methods in the treatment of syphilis. The influences which control this publication may be guessed.

The enactment by Congress of the so-called Shepard-Towner act changed completely the aspects of the maternity aid question. The proposals made by the Special Commission in this state were not considered. The so-called Spencer bill—a poor relief measure—was given leave to withdraw by the Committee on Public Health, but was finally referred to the next annual session.

The bill for the acceptance of the provisions of the Shepard-Towner act was defeated. The question was then raised as to how much the state was being taxed for the distribution by Congress among the states of sums to be devoted to various purposes. The opinion of the attorney-general as to the constitutionality of the act was obtained and was unfavorable. The state is now to take steps to test before the Supreme Court of the United States the constitutionality of the act.

The bill introduced and most ably supported by the Committee on Medical Education and Medical Diplomas, which sought to raise the standards of medical education in Massachusetts, now among the lowest in the country, led to a slight gain. The bill provided that students should be fitted to undertake the study of medicine by two years of college work, or its equivalent, in those branches which lead up to medicine, and that the graduate should have a year's internship in a hospital before being entitled to registration as a physician.

As finally passed, the bill provided that the medical student must have graduated from a high school or its equivalent, and added to the requirements for registration to practice medicine, the ability to pass an examination in physics, chemistry, and biology. The real purpose of the proposed requirements, the preparation of the student to begin the study of medicine understandingly, was lost. One short step in advance has, however, been taken.

The bill for the registration of medical students for the limited practice of medicine was finally passed. This measure was deemed necessary by the Board of Registration in Medicine if methods of education now essential and working satisfactorily were to be continued under existing laws. Yet but one of the three Class A Medical Schools of Massachusetts deemed it necessary to send any representative to explain the simple provisions of the bill to

the Committees of the Legislature. The bill was narrowly saved from defeat.

The bill for registration of x-ray technicians was put over to the next annual session.

The bill for the establishment of a Division of Registration and Narcotic Drug Control in the Department of Civil Service and Registration was defeated.

The bill for the examination and registration of midwives was referred to the next annual session. It is a matter on which there is a wide divergence of opinion. All agree that the present conditions are unsatisfactory. Those who favor the bill look forward to a better education and recognition of midwives. Those who oppose it aim at their gradual elimination. It is a matter which at present concerns only certain of the larger cities with a considerable foreign population, but it is a matter upon which physicians should form opinions.

A bill to permit more than three members of any School of Medicine to serve on the Board of Registration was postponed to the next annual session.

An attempt to make a lawyer the Secretary of the Board of Registration in Medicine was defeated.

The proponents of a measure intended to defeat in part, at least, the purposes of the act passed a year ago for the physical examination of school children, were given leave to withdraw.

Bills to allow compensation in Industrial Accident cases for periods in excess of two weeks if this would aid in the restoration of the health of the injured workman, and doing away with the vague term, "unusual case," were defeated, as also were bills to allow compensation for other than strictly medical or surgical treatment.

Bills to provide a basis upon which medical fees in Industrial Accident cases should be approved, and relative to hearings upon the fees of physicians in these cases, were given leave to withdraw. The fees allowed for burial in Industrial Accident cases were, however, increased.

Among the bills whose proponents were given leave to withdraw were those regulating the sale of candy to children, requiring the physical examination of persons employed in hotels and restaurants, and for the appointment of doctors in small towns.

A year ago a bill was introduced which would have enabled any person owning property nearby to close any hospital. This year a more reasonable bill was introduced which was referred to the next annual session. It is maintained that conditions exist which make certain private hospitals objectionable to the neighbors. At present only lying-in hospitals and those caring for patients suffering from mental diseases are licensed. The question will undoubtedly soon come up for settlement as to what rights the neighbors have regarding the establishment of hospitals, and as to the licensing of all hospitals by the state.

Two acts dealing with tuberculous cattle have been passed. One aims to prevent the transfer of infected cows, the other aims at the eradication of disease by providing for compensation to the owners of cattle slaughtered because of infection. Both of these measures are of importance because they will help to prevent tuberculosis among children.

The Department of Public Health was directed to report on the possibility of establishing hospitals for the treatment of surgical or non-pulmonary tuberculosis.

Within a few days the Department of Public Health has been directed to investigate the entire subject of tuberculosis in the Commonwealth, including the matter of state, county and municipal tuberculosis hospitals or hospital districts, ascertain the cost and maintenance cost of said hospitals; investigate the valuations of said property in detail and report as to the advisability of the Commonwealth taking over and maintaining these tuberculosis hos-

pitals, together with an estimate of the cost involved. The Department also shall report what, in its opinion, should be the general policy to be pursued by the Commonwealth, both as to methods of treatment and distribution of expense thereof in relation to the entire subject of tuberculosis in any state, county or municipal hospital, or hospital district. The report is to be made next January.

The proposal to change the name of the Department of Mental Diseases to the Department of Mental Health has been put off.

The plan to establish a Division of Mental Hygiene within the Department has been put off.

The plan to have those indicted for crimes of a capital nature or indicted more than once for crime examined by the Department of Mental Diseases to determine their mental conditions was defeated. This bill would have done much to simplify legal procedure because the report of the Department would have been unprejudiced evidence before the Court.

Definite steps in advance have been taken to make the illicit dealing in narcotic drugs more difficult, and to permit more adequate care of the drug addicts throughout the state.

A matter brought up by Dr. S. B. Woodward February 2, 1921, and referred to the Committee by the Council, dealing with the limit set to the funds which the Society may hold, has been acted upon by the passage of the following vote:

To recommend that action be taken looking toward a petition to the next General Court for the enactment of a statute amending Chapter 15, Section 9, of the Statutes of 1781, relating to funds; and, if approved by the Society at its annual meeting, a committee be appointed, consisting of the President and Secretary, who, in consultation with legal counsel of the Society, shall prepare a bill to be submitted for the approval of the Council at its stated meeting in October, 1922.

Respectfully submitted,

JAMES S. STONE, *Secretary*.

APPENDIX NO. 4.

REPORT OF THE CERTIFIED ACCOUNTANT AS TO THE FINANCIAL SITUATION OF THE JOURNAL FOR NINE MONTHS, UP TO DECEMBER 31, 1921.

BOSTON MEDICAL AND SURGICAL JOURNAL,
126 Massachusetts Avenue,
Boston, Mass.

Gentlemen: In accordance with your request, I have audited the books of the BOSTON MEDICAL AND SURGICAL JOURNAL for the period from April 1, 1921, to December 31, 1921, and submit herewith:—

Schedule A. Statement showing the Assets and Liabilities of the BOSTON MEDICAL AND SURGICAL JOURNAL, December 31, 1921.

Schedule B. Statement showing the Profit and Loss Account of the BOSTON MEDICAL AND SURGICAL JOURNAL, from April 1, 1921, to December 31, 1921.

CASH.

All cash receipts and disbursements have been verified. The bank account has been reconciled and found to be in agreement with the books.

ACCOUNTS RECEIVABLE.

The various items shown under Accounts Receivable on Schedule A represent the amount due customers on account of advertising, reprints, etc.

SUSPENSE ACCOUNT.

This account represents bad accounts which have been turned over to a collection agency and which are temporarily carried in this account.

OLD JOURNALS.

The balance of this account represents the estimated cost of all old journals on hand December 31, 1921.

ACCOUNTS PAYABLE.

A separate exhibit is submitted giving the detail of the amounts owed by the JOURNAL on December 31, 1921, the largest being due for printing.

SURPLUS.

Considerable difficulty was experienced in obtaining the correct figures for the Surplus Account as of April 1, 1921, inasmuch as the books were started in October, 1920, and had continued without being closed through December 31, 1921. In order to prepare financial statements for the period from April 1, 1921, to December 31, 1921, it was necessary to make a great many adjustments in order to arrive at the balances on April 1st.

Contributions made by the Massachusetts Medical Society have been added to the balance of April 1st, and the net loss from operations deducted, showing a net Surplus on December 31, 1921, of \$5533.70.

PROFIT AND LOSS ACCOUNT.

In preparing the Profit and Loss Account as shown on Schedule B, I have shown the revenue from all sources from which the expenses have been deducted, leaving a net operating loss of \$9617.24. This operating loss represents the actual net loss without taking into consideration any contributions made by the Massachusetts Medical Society.

SALARY OF EDITOR.

The \$1500.00 turned over to the JOURNAL by the Massachusetts Medical Society for the payment of the editor's salary was not received until after the close of the year, although I have caused it to be brought on the books as of December 31, 1921. As shown in the statement of revenue, the contribution of \$1500.00 represents the \$1500.00 salary paid to Dr. Bowers, who in turn contributed it to the JOURNAL.

GENERAL.

A new ledger has been opened as of January 1, 1922, containing revenue and expense accounts which will facilitate an audit during the coming year, and will at all times enable you to prepare a statement showing the Assets and Liabilities, or a statement showing the revenue and expenses for any period without the necessity of analyzing the accounts as done during the past year.

Respectfully submitted.

HORACE C. HARTSHORN.

Certified Public Accountant.

STATEMENT SHOWING THE ASSETS AND LIABILITIES OF THE BOSTON MEDICAL AND SURGICAL JOURNAL.

DECEMBER 31, 1921.

Schedule A.

ASSETS.

WORKING ASSETS

CASH:

State Street Trust Co. \$1,864.11
Petty Cash 26 \$1,864.37

ACCOUNTS RECEIVABLE:

Advertising 3,209.54
Classified Advertising 171.95
Reprints 578.85
Miscellaneous Sales, 98.12 4,058.46

NOTES RECEIVABLE:

Dr. Millett 75.00
SUSPENSE ACCOUNT 342.83
JOURNALS ON HAND (Back numbers) 157.79

Total Working Assets \$6,498.45

CAPITAL ASSETS

OFFICE FURNITURE 700.00
INVESTMENTS:
Liberty Bonds 1,000.00
Total Capital Assets 1,700.00
Total 8,198.45

LIABILITIES.

WORKING LIABILITIES

ACCOUNTS PAYABLE *Exhibit I* \$2,664.75
Total Working Liabilities.... 2,664.75

CAPITAL LIABILITIES

SURPLUS:

Balance April 1, 1921..... 2,931.21
Amount Contributed by Massachusetts Medical Society from April 1, 1921, to December 31, 1921..... 12,219.73

Total 15,150.94
Less—Net Loss from Operations from April 1, 1921 to December 31, 1921 *Schedule B* 9,617.24

BALANCE DECEMBER 31, 1921 \$ 5,533.70

Total 8,198.45

ACCOUNTS PAYABLE DECEMBER 31, 1921.

Schedule A—Exhibit I

Farragut Building Trust..... \$54.17
New England Tel. & Tel. Co..... 8.18
Edison Electric Ill. Co. of Boston..... 1.66
Fort Hill Paper Co..... 5.90
Hamilton Autographic Co..... 3.49
Jamaica Printing Co..... 2,591.35

Total 2,664.75

STATEMENT SHOWING THE PROFIT AND LOSS ACCOUNT OF THE BOSTON MEDICAL AND SURGICAL JOURNAL, FROM APRIL 1, 1921, TO DECEMBER 31, 1921.

Schedule B.

REVENUE.

Advertising \$12,882.38
Reprints 3,419.91
Subscriptions 2,095.60
Contributions 1,500.00
Classified Advertising 656.30
Miscellaneous Sales 253.46
Interest and Discount 258.49
Interest from Liberty Bonds..... 63.70
Total Revenue 21,129.84

EXPENSE.

Cost of Journal:

Stock 5,208.35
Labor 11,467.38
Reprints 4,861.49
Postage 679.98
Engraving 1,202.50
Directory 731.80
Transportation 129.45
24,340.95

Salary of Editors.....	1,677.00
Editorial Expense.....	227.35
Subscription Refund.....	13.99
Subscription Commission.....	62.25
Advertising Commission.....	1,397.69
Discount Allowances.....	275.33
Office Salaries.....	1,565.50
Office Expense.....	532.46
Telephone.....	66.21
Rent.....	487.53
Light.....	10.02
Collection.....	18.79
General.....	17.56
Traveling.....	36.25
Insurance.....	18.00
Total Expense.....	30,747.08
Net Loss.....	9,617.24

APPENDIX NO. 5.

REPORT OF THE COMMITTEE ON MATERNAL AND INFANT WELFARE.

The Committee made two reports to the Council last year, one approved by the whole Committee, and the other a minority addendum. These reports showed that there were differences of opinion relating to the questions connected with maternal and infant welfare work.

During the past year much time has been devoted to discussions relating to the functions of the Committee and suggestions for plans which might lead to constructive action. Some of the Committee felt that valuable information would be obtained by a survey of those hospitals in this State that are doing obstetric work, but this did not meet with unanimous approval.

The Committee did agree to engage in a study of maternal deaths as reported to the Department of Vital Statistics on record at the State House, and that letters should be sent to those physicians who had reported deaths under the classification of maternal deaths, for the purpose of ascertaining the circumstances surrounding these cases and any etiologic factors involved. With these objects in view, a clerk has been employed to tabulate cases of maternal deaths, as shown by the State reports.

Considerable delay was imposed by the request of the registrar of vital statistics for postponement of a study of these cases until such time as the records could be examined without inconvenience to those in charge at the State House. Some copies of the death returns have been submitted and about one hundred letters to physicians have been sent. The responses have not been in sufficient numbers to warrant definite conclusions at this time, but are encouraging because of the spirit of coöperation shown.

The Committee regards the investigations already undertaken as of value and feels that they should be carried further. Therefore, the Committee submits this report as a report of progress and recommends that the Committee be continued.

For the Committee,

WALTER P. BOWERS,

[All members of the Committee have signified approval of the report.]

APPENDIX NO. 6

REPORT OF THE COMMITTEE ON CANCER.

The Committee on Cancer has been active during the past year. The principal work carried out has been in connection with the organization of "Cancer Week" in Massachusetts, as a part of the national

"Cancer Week," from October 30th to November 5th, 1921. This campaign, in charge of the Massachusetts Committee of the American Society for the Control of Cancer, was aided by your Committee in two ways. First, members of your Committee took an active part in the organization and direction of this campaign; second, it invited coöperation on the part of district medical societies throughout the State. The educational results obtained through public and professional lectures, distribution of literature, and the public press have been highly encouraging. A summary of the work accomplished during the "Cancer Week" has been published in the *Boston Medical and Surgical Journal* for March 9, 1922, and needs not to be described here. It is felt that the results obtained should be driven home by a second "Cancer Week" occurring next autumn, and plans for this end are already under way. The experience gained during the "Cancer Week" last year should prove highly valuable in bringing out a broader and more effective educational campaign. We feel that a Committee on Cancer of the Massachusetts Medical Society has been of use in connection with this work and that such a committee should be continued.

Very respectfully,

EDW. REYNOLDS, *Chairman.*

APPENDIX NO. 7.

REPORT OF THE COMMITTEE ON WORKMEN'S COMPENSATION ACT.

This year something over thirty-seven bills were filed with the Legislature dealing with various problems of workmen's compensation. Directly upon these bills having been filed, your Committee held several meetings which were fairly attended, and took up all the bills of this nature for consideration. After considerable discussion, it was decided that eight of the bills were such as to need the support of the two medical societies.

Perhaps the most important bill was Senate No. 270, which aimed to remove the ambiguity of the present law by substituting for the word "unusual" the words "in all cases where medical treatment will minimize the disability or aid in the restoration of the injured to working capacity for a longer period in the discretion of the Industrial Accident Board."

Another vitally important bill was Senate No. 250, which added to the present law after the words, "personal injury," the words "or disease," amplifying the law so as to include occupational diseases.

House No. 568 was considered important as providing for massage, baking, electric, and other treatment, in the cases needing it.

Senate No. 271 clarified the law by providing that any decision of the Industrial Accident Board which may now be rendered by one member only of the Board should be subject to review by the entire Board.

Senate No. 272 defined more clearly that the fees paid the physicians in connection with these cases should be based upon the allowance of not less than the average minimum fee in the locality or district in which the service is rendered; and further provided that where the department was of the opinion that an artificial eye or limb or other mechanical appliance would promote his restoration to industry, it might so order it.

House Bill No. 680, providing that no physician should be employed as an impartial who had been employed by any insurance company during the previous two years, your Committee decided to oppose as being far too indefinite.

After several meetings of your Committee, a joint meeting was held with the Committee on State and

National Legislation, at which the President and Dr. J. S. Stone were present, giving valuable suggestions and advice.

Upon receiving notice of the dates for the hearings on these bills by the Joint Judiciary Committee, your chairman was present and presented the views of the two societies in relation to these bills on three successive days. In passing, it may be said that all of these bills which we approved were filed with the one purpose of clarifying the present law and endeavoring to protect all those concerned against the marked tendency on the part of the Supreme Court, as evidenced by its decisions in recent years, to narrow application of the law. The changes suggested were believed to be enormously important to the better and more effective working of the law, and we feel sure these bills had the approval of those of the Industrial Accident Board who were best in position to know the details in connection with them. In addition to your chairman, a few others representing different organizations throughout the State were present and spoke in support of the bills. There was no opposition at any of the hearings, and yet the Joint Judiciary Committee reported essentially on all of them, "Leave to withdraw," and no further action has since been taken by the Legislature on any of the bills.

Your chairman feels that at present, with the insurance interests as thoroughly well organized as they are, it is a great question whether such time as was spent on these bills was worth while. It is certain that the combined societies can accomplish no change in the law without extraordinary activity, a widespread interest, and energetic work by a large number of men throughout the State. He would suggest that the Committee be discharged, and that we await a sufficiently important crisis in matters relating to workmen's compensation to awaken enthusiastic interest on the part of the fellows of the societies, and then form a new committee to meet the exigency.

ARTHUR N. BROUGHTON, *Chairman*.

Abstract.

NATIONAL TUBERCULOSIS ASSOCIATION MEDICAL RESEARCH.

X-RAY AND CLINICAL FINDINGS IN NORMAL CHEST OF CHILDREN, 6 TO 10 YEARS.

THE above is the title of a report recently handed in by a committee appointed by the National Tuberculosis Association to investigate and report on the x-ray and clinical findings in the normal chest of children 6 to 10 years. This committee was composed of three clinicians, Drs. H. R. M. Landis of the University of Pennsylvania, Charles R. Austrian of the University of Johns Hopkins, and K. D. Blackfan of the University of Cincinnati, and of three roentgenologists, Drs. H. K. Pancoast of the University of Pennsylvania, F. H. Baetjer of the University of Johns Hopkins, and H. K. Dunham of the University of Cincinnati. This committee has been at work during the past two years and has only recently handed in its report.

The conclusions arrived at in such a subject as this of necessity cannot be absolutely definite one way or the other, but these conclusions are none the less of the greatest of value. There is probably no subject at the present time concerning which there is more difference of opinion among both clinicians and roentgenologists, and especially between the clinician and the roentgenologist, as in the diagnosis of bronchial gland tuberculosis and as to what consists the normal and what the abnormal in the child's chest and the causes therefor.

Clinical data dealt with in this report were obtained by careful examination of apparently healthy children between the ages of 6 and 10 years. All children who showed signs of disease were excluded. Children from various strata of society, foreign and native-born, residents of urban and of rural communities, school children and children residing in institutions, children exposed to tuberculosis and some without a history of such exposure, children with and without a history of previous infectious diseases, all symptom-free, and of an approximately normal height and weight for their ages, were studied. A tuberculin test was made on every child. The clinical data were then assembled, and after the roentgenologist had interpreted his plate independently, the clinical and roentgenographic findings were correlated. In all, 500 children were thus studied.

Among other conclusions they believe that a just detectable diminution of resonance over the apical regions is of no significance unless associated with a modification of the breath sounds in those areas or with other abnormal auscultatory findings. The so-called puerile breathing, breath sounds of a harsh, sharp character, with expiration longer and better heard in the child, is physiological and often incorrectly interpreted as evidence of pulmonary disease. Often, however, the so-called vesicular respiratory murmur, characteristically present in adult life, is heard. They claim that d'Espine's sign as indicative of enlarged tracheo-bronchial lymph nodes is, to say the least, of doubtful value. In 23 of the children this sign was present without x-ray or any other evidence of mediastinal mass. Eustace-Smith's sign is so generally present that it is of little or no diagnostic worth. The presence of these two signs together with impairment of resonance in the interseapular region is all too frequently made the premises for a diagnosis of tuberculosis of tracheo-bronchial lymph nodes. This they believe to be unwarranted. They emphasize the importance of acute sudden infections as the cause of enlargement of the bronchial glands, such

as measles, whooping-cough or tonsillar infections.

The clinicians on this committee, Drs. Landis, Austrian and Blackfan, present the following conclusions:

1. The data obtained on percussion and auscultation of the lungs of normal children show wide variations from a fixed standard. These variations are usual and are considered to be within normal limits.

2. Inasmuch as the changes referred to are dependent often upon alterations that persist as the residua of past infections of the respiratory tract, it is obvious that a careful anamnesis, with special reference to all infections, is necessary if diagnostic errors are to be avoided. Even a history carefully taken is often unreliable, as minimal infections are soon forgotten by many and among the unintelligent classes even more significant indispositions are not readily recalled.

3. Failure properly to evaluate these deviations from a fixed standard will often lead to the unwarranted diagnosis of disease and to even less justifiable treatment.

4. With a proper appreciation of the widest variations that the normal may present from the ideal, the informed clinician is better able correctly to understand the findings of the roentgenologist, and each, coöperating with the other, is less liable to error.

5. D'Espine's sign as indicative of enlarged tracheo-bronchial lymph nodes is of little value.

6. Recognition of and familiarity with the foregoing data is of cardinal and practical importance to every patient, potential and established. Without a proper appreciation of the facts set forth, no intelligent differentiation between a normal and an abnormal respiratory tract can be made.

The three roentgenologists, Drs. Pancoast, Baetjer, and Dunham, summarize their opinions as follows:

The Normal Chest.—The normal chest of the child, from the roentgenologic standpoint, is subject to such wide variations within normal limits as to be beyond the possibility of exact description.

Hilum Shadow.—The conglomerate shadow commonly called the hilum shadow, when found lying entirely within the inner third or zone of the lung area, can be disregarded (or regarded as normal), except where it is made up of a solid mass of homogeneous shadow giving undoubted evidence that it represents a growth or mediastinal pleurisy.

Calcified Nodes.—Calcified nodes at the root of the lung, without evidence of lung disease, are of no significance except as a possible evidence of some healed inflammatory condition, possibly but not necessarily tuberculous. They are a common finding in normal chests.

Density and Thickness of Trunk Shadows.—

In the normal lung the bronchial trunk shadows are not visible in the extreme apical regions. For convenience of description the remainder of the lung is divided into three vertical zones, extending outward from the lateral border of the spinal shadow to the lateral chest border. The inner zone contains the root shadows. The mid-zone contains the trunk shadows, gradually fading out into their final subdivisions. The peripheral zone contains radiating lines from these and fading off before the periphery is reached. Where in the mid-zone or peripheral zone these shadows do not disappear in the characteristic fashion described, the appearance may be evidence of a variety of conditions, past or present, of an inflammatory nature or otherwise. It may accompany a tuberculous process but is not necessarily indicative of tuberculosis.

Improper or Misleading Terms.—The use of the terms "peribronchial tuberculosis" and "parenchymal tuberculosis" is not to be recommended in the interpretation of roentgenograms of the chest. Until corroborated by laboratory or clinical findings, the use of the terms "active" and "quiescent" should not be definitely applied to evident lesions demonstrated on plates.

UNITED STATES CIVIL SERVICE EXAMINATION.

JUNIOR MICROANALYST, AUGUST 9, 1922.

The United States Civil Service Commission announces an open competitive examination for junior microanalyst on August 9, 1922, at any of the places listed in the official notice at which examination is requested in applications received in time to mail examination papers. Vacancies in the Bureau of Chemistry, Department of Agriculture, for duty in Washington, D. C., and in the field, at \$1400 to \$1800 a year, and in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The examination referred to will be given on the date mentioned therein at the places named in the official notice. A request for examination on another date or at a place not included in the list cannot be granted. Except where otherwise indicated, application blanks may be obtained from the local secretary of the United States Civil Service Board at the postoffice.

BOOKS RECEIVED FOR REVIEW.

THE JOURNAL acknowledges the receipt of the following books for review:

Smell, Taste and Allied Senses in the Vertebrates.—By G. H. Parker. Published by J. B. Lippincott Co., Philadelphia. 192 pages. Price, \$2.50.

Aids to Organotherapy.—By Ivo Geikie Cobb. Published by William Wood & Co., New York. 183 pages. Price, \$1.75.

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REPORT OF THE COMMITTEE FOR THE STUDY OF NURSING EDUCATION.

THIS committee has published its report under date of June 27, 1922. As constituted at present the committee consists of the following named persons: C.-E. A. Winslow, Dr.P.H., chairman, Yale Medical School, New Haven; Mary Beard, R.N., Boston; H. M. Biggs, M.D., New York; S. Lillian Clayton, R.N., Philadelphia; Lewis A. Conner, M.D., New York; David L. Edsall, M.D., Boston; Livingston Farrand, M.D., Ithaca; Annie W. Goodrich, R.N., New York; L. Emmett Holt, M.D., New York; Julia C. Lathrop, Washington, D. C.; Mrs. John Lowman, Cleveland; M. Adelaide Nutting, R.N., New York; C. G. Parnall, M.D., Ann Arbor; Thomas W. Salmon, M.D., New York; Winford H. Smith, M.D., Baltimore; E. G. Stillman, M.D., New York; Lillian D. Wald, R.N., New York; W. H. Welch, M.D., Baltimore; Helen Wood, R.N., St. Louis; Josephine Goldmark, Secretary, 270 West 94th Street, New York City.

The plan agreed upon as set forth in their report provides for nursing service embracing three grades:

(1) The trained registered nurse for the care of the acutely ill, the present training course of three years to be enriched and im-

proved and at the same time reduced 20 per cent. in length, without lowering standards;

(2) the public health nurse, the supervising nurse, and the teacher in schools of nursing, who are to receive specialized postgraduate training in addition to the standard course for registered nurses; and

(3) the subsidiary nursing worker, to be trained by an eight or nine months' course and licensed as nursing aide or nursing attendant for the care of minor and chronic illness and convalescence.

Throughout the report emphasis is laid on the fundamental necessity of generous financial support—which has never yet been provided—for all forms of nursing education.

The committee gives a clear conception of the rôle of the Public Health Nurse which may be an answer to the question, what constitutes a Public Health Nurse?, which has been asked frequently of late, in the following language:

The function of the nurse in public health is explained as follows:

"The new educational objectives of the health administrator may be approached to a limited extent by mass methods. The printed page, the public lecture, the exhibit, the cinematograph, the radiogram, help to prepare the ground and make success easier. The ultimate victory over ignorance is, however, rarely attained in such ways. Direct personal contact with the conditions of the individual life is essential to success in a matter so truly personal as hygiene. We have sought during the past twenty years for a missionary to carry the message of health into each individual home; and in America we have found this messenger of health in the public health nurse. In order to meet generally accepted standards we should have approximately 50,000 public health nurses to serve the population of the United States, as against the 11,000 now in the field. All public health authorities will probably agree that the need for nurses is the largest outstanding problem before the health administrator of the present day."

The Committee emphasizes the supreme value of combining bedside and instructive public health nursing and holds that the nurse who renders direct professional service in lessening the burden of illness "has an overwhelming advantage then and thereafter in teaching the lessons of hygiene."

As to her training, it is the judgment of the Committee that the public health nurse, as a "teacher of hygiene in the home,"

"should be equipped with no less rigorous training than that accorded to the bedside nurse, further supplemented by special studies along lines of public health and social service."

In referring to the alleged shortage of nurses the Committee reports that in the period 1910 to 1920 there has been recorded an increase of 83 per cent. in the number of trained registered nurses so that the problem is one of distribution rather than an actual shortage, because the majority of trained nurses are concentrated in the larger cities and the shortage in smaller places is due to economic factors rather than to inadequate numbers.

The Committee emphatically opposes all schemes which have been advanced which would provide for shorter training courses and lowered standards, but since there are more than half of the 300,000 male and female nurses in the United States in the substandard class the conclusion is reached "That steps should be taken through state legislation for the definition and licensure of a subsidiary grade of nursing service, the subsidiary type of worker to serve under practicing physicians in the care of mild and chronic illness, and convalescence, and possibly to assist under the direction of the trained nurse in certain phases of hospital and visiting nursing."

The Committee has reached the conclusion that while a subsidiary grade of nursing service is desirable and inevitable, the grade of nurse to be employed for any case should be determined not by the economic status of the patient but by the nature of the illness. "For the care of acute and serious illness and for public health work it seems certain that we need high natural qualifications and sound technical education; for the care of mild and chronic illness and convalescence it may well be that a different type of capacity and training may be necessary."

For this substandard nurse the Committee offers the suggestion that for some people who would be burdened by the expense of this service the cost should be met by "some form of community organization or along lines of group insurance."

In analyzing the conditions in hospital training schools for nurses the practice employed in twenty-three carefully selected schools were carefully studied and the conclusions reached are that "defects were found in both the practical ward training and in the class-room teaching. "Inadequate laboratory equipment," "excessive night work," "inad-

equate supervision" of student nurses, and "lack of an intelligently planned progressive" course of study are among the points mentioned for criticism. "Most striking of all," however, according to the Committee's report, "was the factor of time wasted in procedures essential to the conduct of the hospital, but of no educational value to the student concerned," and the criticism is offered that one fourth to one fifth of the students' time is wasted on details of no practical value.

The concrete suggestions relating to the teaching of nurses presented by the Committee are, first, that adequate funds should be available for the expenses of the school; second, that student nurses should be replaced by graduate nurses in the execution of routine duties; third, that the pre-nursing educational requirements should be at least a high school course or its equivalent; and, fifth, a reduction of the time of training to twenty-eight months and the day's work to eight hours.

In order to provide for the subsidiary grade of nurses it is advised that courses should be established in "special hospitals, in small unaffiliated general hospitals or a separate section of hospitals where nurses are also trained." This latter term of training to be of eight or nine months' duration "provided that the standards of such schools are approved by the same educational board which governs nursing training schools."

The University School of Nursing is strongly recommended for the development of well equipped instructors in schools of nursing. Such schools should be a separate and independent department of the university, much like the present medical school. Since the training of nursing aides, of nurses and of teachers costs money a campaign should be conducted to secure adequate funds. The report closes with the following statement:

"If the community needs and desires the service of competent nurses for the care of the sick and the prosecution of the campaign of public health, it must pay for their education, as it pays for every other conceivable kind of education—either through taxes or through the generosity of its great philanthropic foundations."

This report, as a whole, is an admirable piece of work and sets forth a constructive policy which, if followed, would be ideal so far as human agents can carry into effect the recommendations of wise advisers. The great difficulties will be found in the inability of the great number of small hospitals to conform to these requirements. Fortunately or unfortu-

nately, a great deal of medical service is rendered in small hospitals which are serving communities unable or unwilling to contribute much more in the way of financial support. Many of these hospitals are ambitious to maintain training schools, some because it is felt that the human material should be utilized for teaching purposes and others solely because the training school furnishes cheap nursing service. One can logically criticize the small hospital training school in comparison with the large, well equipped institutions in many instances, but we must acknowledge that the average quality of medical and nursing service is better in those communities in which the hospital functions as the central agency by and through which the medical profession receives inspiration and renders service. The nurse, although she may not always compare favorably with her sister in the large metropolitan hospital, may be doing much good as the physician's coadjutor.

The ideals of the Council on Medical Education may, it is feared, have exerted a blighting influence on some of the small but honorable medical schools. The question of how far the requirements for higher nursing standards should be applied is a serious one, and although improvements are most desirable, the problem should be considered in all its aspects. If there is danger of seriously inhibiting the usefulness of small hospitals, drastic changes in standards should be adopted only because the greater good to the greater number warrants such alterations.

NEWS ITEMS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending June 24, 1922, the number of deaths reported was 163, against 204 last year, with a rate of 11.13, against 14.04 last year. There were 23 deaths under one year of age, against 24 last year.

The number of cases of principal reportable diseases were: Diphtheria, 46; scarlet fever, 28; measles, 145; whooping cough, 13; typhoid fever, 3; tuberculosis, 48. Included in the above were the following cases of non-residents: Diphtheria, 3; scarlet fever, 6; measles, 1; typhoid fever, 1; tuberculosis, 6.

Total deaths from these diseases were: Scarlet fever, 1; tuberculosis, 20. Included in the above were the following cases of non-residents: Tuberculosis, 2.

WELLESLEY COLLEGE RESEARCH FELLOWSHIP.—A research fellowship of \$1000 for the study

of orthopedies in relation to hygiene and physical education will be offered by Wellesley College beginning in September, 1922, and continuing for one year.—*Science*, June 23, 1922.

ADDITIONAL FUNDS FOR TREATMENT OF LEPROSY.—The sum of \$650,000 would be appropriated by Senate Bill 3665 to enable the Secretary of the Treasury, through the United States Public Health Service, to provide care and treatment for persons afflicted with leprosy. The money, should the bill become a law, would be used in improving the government leprosarium at Carville, Louisiana, and also for the transportation and care of patients at that institution, as well as for the prevention of the spread of leprosy in the United States.

DEPARTMENT OF PHARMACOLOGY, HARVARD MEDICAL SCHOOL.—During the exercises of the Annual Meeting of the Massachusetts Medical Society, over 175 fellows attended the exercises conducted by this department, showing that there is interest in the treatment of diseases by medicinal agents.

ADDRESS BY DR. W. B. CANNON.—Dr. Walter B. Cannon will give an address on "What Has Been Accomplished by Animal Experimentation" during the meetings of the Pacific Northwest Medical Association, July 6, 7 and 8.

RED CROSS NURSES.—In Wisconsin over 100 farms were partially destroyed and many others rendered a total loss in June. Working with a mobilized citizens' committee were two Red Cross nurses assisting in the care of the injured and the sick. In June, also, Red Cross nurses were called upon to serve in the emergency created by the Iverne, L. I., fire, where there were many casualties.

Miscellany.

LEGISLATIVE MATTERS.

A REVIEW OF NATIONAL LEGISLATION CONCERNING NURSES.

ALL legislation pertaining to public health is, obviously, of interest to nurses and public health nurses. The 67th Congress has had before it, however, a number of bills which directly concern the members of the nursing profession. Perhaps the two most important are the Wadsworth-McKenzie pay bill (H. R.

10972) and the Lehlbach-Sterling reclassification bill (H. R. 8928).

The Wadsworth-McKenzie bill is designed to readjust the pay and allowances of the Army, Navy, Marine Corps, Coast Guard, Coast and Geodetic Survey, and Public Health Service. It passed the House on May 12 and the Senate on May 22, was considered in conference, agreed upon, and signed by the President. The act went into effect on July 1.

Section 13 of the act provides the following annual rates of pay for Army and Navy nurses (members of the Nurse Corps of the Public Health Service are not affected by this act): First three years' service, \$840; second three years' service, \$1080; third three years' service, \$1380; from tenth year on, \$1560.

In addition to their pay as nurses, superintendents of nurses receive a money allowance of \$250 a year; assistant superintendents, directors and assistant directors, \$1500 a year; and chief nurses, \$600 a year. Nurses are also allowed subsistence (60 cents a day) and an allowance for rental (\$20 a month), the same as certain officers.

The Lehlbach-Sterling bill provides for reclassification of all civilian government employees. The bill passed the House on December 15, 1921, and was reported in the Senate on February 3, 1922, with several important amendments, some of which directly concerned nurses. In the bill as originally drawn, nurses were included with housekeepers under the Institutional Service. The Senate eliminated this service entirely and placed nursing in the Professional and Scientific, and Subprofessional services. In the former service there are six grades, with compensation ranging from \$1800 a year to \$7200, depending upon the type of work performed, the amount of responsibility, and other factors. Salaries in the Subprofessional Service are from \$1020 to \$3180 a year, divided into six grades. The nurses of the Public Health Service would be governed by this salary schedule.

Several pension bills, which are pending, contain provisions relating to nurses. The bill H. R. 4, which passed the House on February 1, 1922, and has been reported in the Senate, provides for a pension of \$20 a month to all women who served as nurses for 90 days or more during the War with Spain, the Philippine Insurrection, or the Chinese Boxer Rebellion. A bill (S. 3629) has also been introduced to give a similar pension to nurses supplied by the American Red Cross to the Army for 30 days or more during the War with Spain. Another pension bill (H. R. 10031) would give \$50 a month to nurses who served in the Civil War. No action has been taken on these last two bills.

CERTIFICATES OF REGISTRATION REVOKED.

At a meeting of the Board of Registration in Medicine held June 21st, 1922, the certificate of Philip A. E. Sheppard was revoked. The Board interpreted Dr. Sheppard's professional relations with a patient who applied to him for treatment as constituting "unprofessional conduct," for, by the method outlined in the JOURNAL recently, a diagnosis of sarcoma and syphilis had been made and, according to the belief of the Board, based on the testimony submitted, a promise of certain cure was given provided the patient would report for treatment five days each week for several months at a cost of five dollars per treatment, with a total cost of from five hundred to one thousand dollars.

The certificate of Alfred J. Boyle of Boston was revoked for alleged violation of the narcotic drug laws.

The following certificates were suspended: Neshan F. Barronian for six months for associating himself with an unregistered person for the purpose of carrying on the practice of medicine.

Patrick V. Bruniek, for fifteen days, for associating himself with an unregistered person, and the certificate of Abram R. Goodman for fifteen days for unprofessional conduct as shown by his testimony before the Industrial Accident Board and confirmatory testimony of 24 other witnesses.

THE MASSACHUSETTS ASSOCIATION OF ASSISTANT PHYSICIANS.

THE 55th meeting of the Massachusetts Association of Assistant Physicians of the Department of Mental Diseases was held at the Monson State Hospital, Palmer, Mass., on Friday, June 16, 1922. Forty-nine members attended, many being accompanied by their wives. Preceding and following the meeting, small groups were shown the many interesting features of this institution. After luncheon a brief business session was held which was conducted by the President, Dr. Ralph M. Chambers.

The program contained many interesting features. The first series of cases was presented by Dr. S. O. Miller. This consisted of (1) Absence of Sternum, Congenital; (2) Demonstration of the Displacement of Migraine with Epilepsy; (3) Dislocation of Both Hips, Congenital. Dr. L. H. Wright's first case was an unusual presentation of argyria of 26 years' standing. The pigmentation was uniformly distributed and followed the admission of silver nitrate $\frac{3}{4}$ gr., daily, over a period of 5 months preceding her admission for epilepsy.

The second case presented the classical symptoms of myotonia in epilepsy. The Assistant Superintendent, Dr. W. F. Wood, concluded the program with two cases of rare interest. The first was one of chronic myelitis of 18 years' standing. The second of this group was one of the Chareot-Marie, tooth type, of muscular atrophy. Discussion of the latter by Drs. R. H. Greene and H. M. Watkins.

At this time, it was proposed that the August meeting be held at one of the beaches. Date and place will be announced later by the committee.

NEIL A. DAYTON, M.D., *Secretary*,
Wrentham State School.

LETTER FROM DR. P. PODYAPOLSKY.

American physicians who provided food last winter for members of their profession living in Russia, have been paid tribute by the recipients of the aid, through a letter of thanks from Dr. P. Podyapolsky, substitute professor at the University of Saratov. Dr. Podyapolsky in the letter received at the headquarters of the American Relief Administration, 42 Broadway, New York City, expresses his indebtedness and that of the needy medical men of Russia, for the gift of food packages sent them by their American colleagues.

The letter paints a vivid picture of the despondency into which some of the educated classes in Russia had fallen before the arrival of the food packages from the United States, and the gift corn purchased under the \$20,000,000 Congressional appropriation for Russian relief, as follows in abstract:

"Your hand stretching across the ocean, with a friendly, holiday surprise, staves off our destiny—our turn in the general disaster of the 'Titanic'—Russia! Oh, this box contains things we have not seen for a long time. You are creating for our children and ourselves the first bright holiday, and my wife who has been chained to her bed and whose sickness consists solely of having lost in the past four and one-half years about 90 pounds and the last bit of courage, will get up again! We are deeply moved by the pure, touching gladness which has illuminated the dark, languishing days of waiting for our fate. . . . And we do not feel now that we are left all alone, and it seems to us that everything around us is becoming brighter.

"My colleague, Dr. Matvieev, could not endure any longer and took strychnine a few days ago. . . . Nearly two years ago, our daughter, 26 years of age, a doctor of medicine, ended her young life with ten grams of sublimated—she was tired out, but proud and unshaken.

"Thanks to you, we are now experiencing a similar moment."

—*American Relief Administration.*

RHODE ISLAND MEDICAL SOCIETY.

THE annual meeting of the Rhode Island Medical Society, June 1, 1922, at the Medical Library, Providence, R. I., was called to order by President G. S. Mathews.

The minutes of the meeting in March of the House of Delegates and Council were read by Secretary J. W. Leech. No prize was awarded under the Fiske Fund on the subject of "Radium Therapy." The subject chosen for 1923 is "Has Surgery Lessened the Incidence of Cancer?" A prize of \$200 is offered for the best essay submitted.

The officers elected at the annual meeting for 1922-23 are as follows: President, F. E. Peckham, Providence; first vice-president, A. T. Jones, Providence; second vice-president, W. F. Barry, Woonsocket; secretary, J. W. Leech, Providence; treasurer, W. A. Risk, Providence.

Program.—(1) "Rickets and Tetany in Children," W. P. Buffum, Jr., Providence; (2) "Bodily Mechanics in Relation to Chronic Disease," Lloyd T. Brown, Boston; (3) "Hay Fever," Harry S. Bernton, Washington, D. C.; (4) "Some Aspects of the Treatment of Diabetes," Alexander M. Burgess, Providence.

The annual address of President Mathews dealt with the need of closer union of the district societies and the state society, with the nursing problem, etc.

The banquet was held at the Turk's Head Club, Dr. J. E. Mowry of Providence being the anniversary chairman. The speakers were Alonzo R. Williams, Esq., and the Rev. H. H. Hayes.

Obituary.

RESOLUTIONS ON THE DEATH OF EDWARD HALL NICHOLS.

SURGEON-IN-CHIEF TO BOSTON CITY HOSPITAL.

ON June 12, 1922, EDWARD HALL NICHOLS passed from the staff of the Boston City Hospital, with which he had been constantly identified since his graduation from the Harvard Medical School in 1890. After completing his term of service as a surgical house-officer, he became successively executive assistant and assistant superintendent at the hospital, bringing to both duties the clear thought and decisive action which characterized his entire career. Upon leaving the executive office of the hospital, Nichols did not go immediately into prac-

tice, but became director of the Croft Cancer Commission, a position which he held for five years. He then conducted the Department of Surgical Pathology at the Harvard Medical School as instructor, demonstrator, and later as assistant professor, bringing to his surgical technique the fundamental knowledge gained in the laboratory. At this time his work upon bone diseases, especially osteomyelitis, tuberculosis of the bones and joints, and arthritis deformans, was noteworthy. From 1916 to 1918 he was clinical professor of surgery at the Harvard Medical School. In 1918 he was appointed professor of clinical surgery. Throughout his entire connection with the medical school he gave instruction in surgical pathology.

Dr. Nichols was commissioned an honorary lieutenant colonel in the British army during the World War and took over the Harvard unit. Later, as lieutenant colonel in the American army, he was the surgeon in charge of Base Hospital No. 7, and was cited by General Pershing "for exceptionally meritorious and conspicuous service at Base Hospital No. 7, Jougles-Tours, France."

At the meeting of the general staff, the chairman said, "The hospital has met with an irreparable loss," and these few words spoke volumes, for Nichols, through all his years, had given to the hospital his best. Of keen judgment and decisive action, he met the problems of surgery with a thorough knowledge of operative indications, and a thoughtful consideration of the patient's welfare. In executive matters he tried to analyze the underlying reasons and the motives which prompted the action. Intolerant of sham or pretense, strong in his likes and dislikes, his striking personality impressed all who knew him. He sought the truth and if wrong himself he was glad to accept the correction provided it was sound. Nichols never faintly praised; a thing was right or wrong, and he valued it accordingly.

Dr. Nichols was a rare man; an unusual and outstanding figure; a thoroughly trained surgeon capable of performing difficult operations; a clear and decisive teacher. His place in the hospital will be difficult if not impossible to fill; his loss will leave in our hearts a never-ending sorrow.

Correspondence.

"SOME FEATHRES OF MEDICAL EDUCATION."

June 27, 1922.

Mr. Editor:

Your editorial with the title given above is admirable, and as an analytical showing of present conditions there is nothing to add to it. But there is one thing upon which I would place special emphasis now.

It is that very many patients are at an extreme loss to know, when they are ill, for whom to send. I confess that as an old general practitioner and with many of my former house physicians at the top, I do not know which one still does general practice. They are all, apparently, consultants, or specialists, and yet I, like all men and women, at any time may be ill. Personally, so long as I can, I will take care of myself, but that day and time is rapidly fleeting. Who, later, will be sent for as my doctor, I do not know, and, alas, I cannot advise, in view of what I have stated.

BEVERLEY ROBINSON.

129 East 35th Street, New York City.

THE COMMITTEE ON PUBLIC HEALTH.

Mr. Editor:

In your report of the proceedings of the Council at the meeting of June 13 you imply that the request of the Committee on Public Health for an appropriation was rejected by the Committee on Membership and Finance because the report of the former committee did not technically come before the latter in season for consideration, for "although it had appeared in the JOURNAL, the Committee on Finance did not regard that as a communication directly to it."

As chairman of the Committee on Finance, I tried to make it clear that this was not the reason, but that the vote of the Council in February had included the proviso that the Committee on Health must present to us, in the words of the vote, a "definite detailed plan" for the expenditure of the appropriation asked for.

No such "definite detailed plan" was presented to us, either early (as the vote directed) or late (if five days before the June meeting be late). And the only action that would enable us to come before the Council prepared to say that we had followed its instructions was, we thought—and still think—the action we did take.

We thoroughly discussed the communication when it reached us, as it did, from the hands of the chairman of the Committee on Public Health, and we were uninfluenced by the fact that a publication in the JOURNAL had preceded any direct communication with us.

"Detailed and definite" meant much to us: "early and indirect communication" meant little.

Very sincerely,

SAMUEL B. WOODWARD.

The vote of the Council is as follows:

"Voted, That the entire matter be referred to the Committee on Membership and Finance for a report at the next meeting of the Council, with the understanding that the Committee on Public Health will present to said Committee on Membership and Finance, at an early date, a definite, detailed plan for the expenditure of the appropriation asked for."
—Editor.

NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS.—The thirty-second annual session of the New York and New England Association Railway Surgeons will be held at the Hotel McAlpin, Broadway and 34th Street, New York City, on Saturday, October 28, 1922, under the presidency of Dr. Donald Guthrie of Sayre, Pa. A very attractive and interesting program is being arranged for this session.

The Boston Medical and Surgical Journal

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Original Articles.

DIGITALIS IN CARDIAC DISEASE.*

By HENRY A. CHRISTIAN, M.D., BOSTON.

IN seeking a topic on which to address you it seemed to me desirable to select one that concerned the majority of you and which might bring to you some suggestions that would be helpful in your usual routine of work. With this in mind, I suggested two topics to your committee, and they selected the one on digitalis therapy. I believe they made a good choice, for in my experience there are many misconceptions in regard to digitalis among practitioners, judged from their use of the drug on patients that subsequently have come under my care.

Certain more or less categorical statements may be made with advantage about digitalis, and some of these I will use to preface my remarks.

The dangers or toxic effects of digitalis are more serious as met with in medical books than in medical practice.

Some one of these toxic effects or so-called digitalis dangers really should be sought rather than avoided in digitalis therapy.

The real dangers in digitalis therapy are three:

- (a) Using a poor digitalis preparation.
- (b) Consciously or unconsciously prescribing too little of a potent digitalis preparation.
- (c) Not knowing when digitalis should be started and stopped.

Digitalis usually is given in too small, *i.e.*, insufficient, dosage. I have yet to see the patient in whom too much digitalis had been given prior to my seeing the patient. I have given too much, *i.e.*, a harmful dose of digitalis, myself, to my knowledge just once, knowingly then taking a chance in a desperate case. The large majority of cardiac patients seen by me have had too little digitalis; a small percentage have had enough digitalis; none have had too much; some have had too little from the point of view of dosage when actually they should have had none.

Digitalis poisoning, of course, is possible, but it is one of the rarities of medicine.

Digitalis is good for the symptoms and physical signs the patient has, provided those symptoms and signs are the result of cardiac insufficiency, *i.e.*, decompensation.

The indications for starting digitalis therapy are the presence of symptoms and physical signs which are the result of cardiac inefficiency, *i.e.*, decompensation.

The symptoms and physical signs of cardiac insufficiency are breathlessness, cough, cyanosis, edema, pain, weakness, nausea, vomiting, enlargement of the liver, decreased urine output, rapid pulse.

*Read May 10, 1922, at meeting of Iowa Medical Society, held at Des Moines, Iowa.

The indications for stopping digitalis are improvement in these symptoms and signs or the occurrence of some of the toxic effects of digitalis.

The toxic effects of digitalis are nausea, vomiting, certain arrhythmias, as bigeminal pulse and heart block, rarely diarrhea.

There are a number of misconceptions about digitalis therapy now in vogue, some very generally. Some of these are:

(a) that a regular pulse indicates that a poor digitalis effect will be obtained;

(b) that striking digitalis effects are confined to patients with auricular fibrillation;

(c) that a slow pulse indicates that a poor digitalis effect will be obtained;

(d) that a fast pulse is an indication for the use of digitalis;

(e) that a murmur is an indication for the use of digitalis;

(f) that cardiac enlargement is an indication for digitalis;

(g) that aortic insufficiency is a contraindication for digitalis;

(h) that myocardial degeneration is a contraindication for digitalis;

(i) that high blood pressure is a contraindication for digitalis;

(j) that arteriosclerosis is a contraindication for digitalis;

(k) that angina pectoris is a contraindication for digitalis;

(l) that nausea and vomiting are due to some undesirable constituents in the digitalis preparation that may be removed by pharmaceutical art.

Other misconceptions might be enumerated, but sufficient have been given to occupy us at present.

Now let us elaborate somewhat on those of the above statements that do not seem clear or for which further evidence appears to be desirable. As to the toxic effects and dangers of digitalis little need be added to what I have already said. The striking fact is that serious toxic effects and real harm from digitalis therapy are almost never seen. Very often symptoms regarded as the result of digitalis are really due to failure to give enough digitalis to control cardiac symptoms. So often digitalis is stopped or some other cardiac drug is used because of nausea, when it is more digitalis, not less, that is needed to abate the nausea.

It needs to be recognized that very often the digitalis which the patient purchases has but slight potency. A serious error is to regard a drop as a minim and to prescribe 15 drops of tincture of digitalis, thinking to give 15 minims; the patient taking 15 drops often gets but five minims, rarely more than seven—both very small doses. This error accounts for

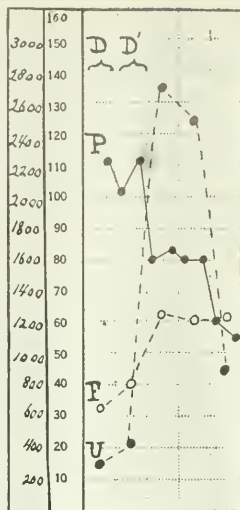


CHART 1.—Male, age 28, chronic cardiac valvular disease, mitral stenosis; rhythm regular. The first column of figures on the left hand side of the chart indicates the amount of urine output and the fluid intake for each 24 hours expressed in c.c. The second column of figures on the left of the chart indicates the apex and radial pulse rates per minute. D=3 doses of 0.2 gm. each of powdered digitalis leaves every 6 hours, a total of 0.6 gm. on this day. D'=7 doses of 0.3 gm. each of powdered digitalis leaves every 6 hours, a total of 2.1 gm. on this day. Total D+D'=2.7 gm. of powdered digitalis leaves. P=pulse rate counted at the wrist. F=fluid intake measured in c.c. U=urine measured in c.c. The effect of digitalis in this case was a slowed pulse (110-55) and on two days a marked diuresis, with urine increase from 400 to 2700 and 2500 c.c.

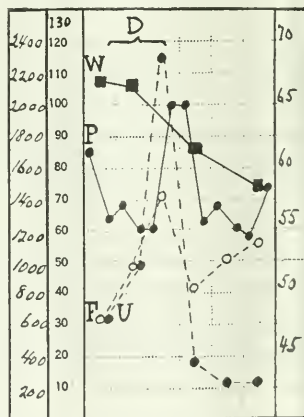


CHART 2.—Male, age 60, chronic myocarditis, rhythm regular. The first column of figures on the left hand side of the chart indicates the amount of urine output and the fluid intake for each 24 hours expressed in c.c. The second column of figures on the left of the chart indicates the apex and radial pulse rates per minute. The column of figures on the right indicates the weight of the patient in kilograms. D=3 doses of 0.2 gm. each of powdered digitalis leaves every 6 hours, a total of 1.6 gm. P=pulse rate counted at the wrist. F=fluid intake measured in c.c. U=urine measured in c.c. W=weight of the patient in kilograms. The effect of digitalis in this case was a moderately slowed pulse rate (85 to 60), a diuresis with urine increase from 625 to 975 and 2300 c.c., and a decrease in body weight of 7.8 kilos, or 17.2 pounds.

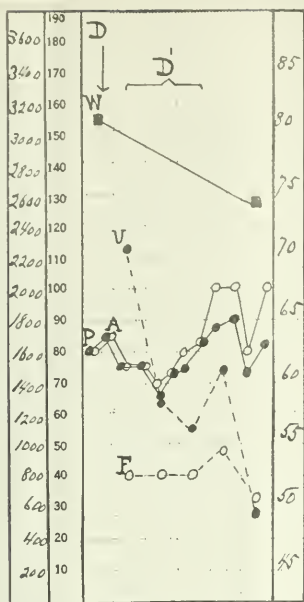


CHART III.—Female, age 45, chronic myocarditis, auricular fibrillation. The first column of figures on the left hand side of the chart indicates the amount of urine output and the fluid intake for each 24 hours expressed in c.c. The second column of figures on the left of the chart indicates the apex and radial pulse rates per minute. The column of figures on the right indicates the weight of the patient in kilograms. D=0.5 gm. of powdered digitalis leaves given at 3:35 p.m. P=9 doses of 0.2 gm. each of powdered digitalis leaves, given four times a day, a total of 1.8 gm. Total D+D=2.3 gm. of powdered digitalis leaves. A=heart rate counted with a stethoscope over the apex region. P=pulse rate counted at the wrist. F=fluid intake measured in c.c. U=urine measured in c.c. W=weight of the patient in kilograms. The effect of digitalis in this case was a diuresis with urine output of 2250 c.c. and a decrease in body weight of 7 kilos, or 15.4 pounds.

much unconscious prescribing of too small a dose. The rest comes from the digitalis being of low potency. I would urge on you the abandoning entirely of directing your patients to take any number of drops of digitalis tincture; most desirable doses contain too many drops to ask your patient to use such a crude method of measurement.

All too often digitalis is given on the part of the physician when the indications for its use are not evident. There should be definite evidences of cardiac insufficiency before digitalis is given. Increased heart rate alone is never the result of cardiac insufficiency and never the indication for digitalis therapy. This may seem a strong statement, but following it will, I am sure, improve your digitalis therapy and save you from giving it when it will do no good and may do harm. Paroxysmal tachycardia does not respond to digitalis and digitalis does not affect simple tachycardia. In infectious diseases a rapid regular pulse, in my opinion, is not an indication for

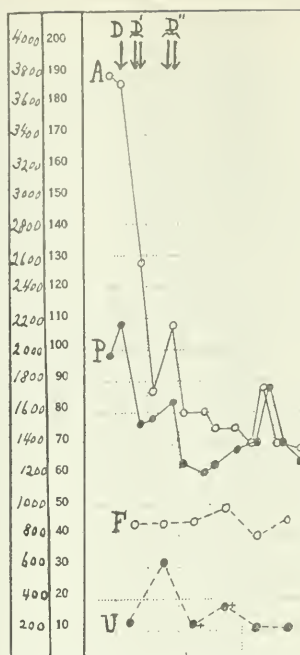


CHART IV.—Female, age 28, chronic cardiac valvular disease, mitral stenosis and regurgitation, aortic regurgitation; auricular fibrillation. The first column of figures on the left hand side of the chart indicates the amount of urine output and fluid intake for each 24 hours expressed in c.c. The second column of figures on the left of the chart indicates the apex and radial pulse rates per minute. D=1 c.c. tincture of digitalis given intravenously at 10:12 a.m. D=2 doses of 0.5 gm. of powdered digitalis leaves at 1:52 and 8 p.m., a total of 1 gm. D=2 doses of 0.1 gm. of powdered digitalis leaves given at 6 and 10 p.m., a total of 0.2 gm. Total D+D+D=1 c.c. of tincture intravenously and 1.2 gm. of powdered leaves by mouth. A=heart rate counted with a stethoscope over the apex region. P=pulse rate counted at wrist. F=fluid intake measured in c.c. U=urine measured in c.c. The effect of digitalis in this case was a slowed apex rate (190 to 70), with disappearance of pulse deficit.

digitalis, and its use will do your patient no good. I see no advantage in the routine use of digitalis in pneumonia, a quite usual procedure. In the pneumonia doing badly with a rapid, weak pulse, I have never seen digitalis help and I have stopped using it in such cases. If auricular fibrillation develops or cardiac decompensation is present, digitalis is very useful. It then behooves practitioners to recognize clearly what are the symptoms and signs of cardiac decompensation, and these I have already enumerated. Here I should add that no murmur of whatsoever sort, nor enlargement of the heart, in itself is an indication for digitalis therapy. If symptoms and signs of cardiac insufficiency are present, give digitalis until they improve, or until some of the toxic effects of digitalis appear. The remarkable thing is that but extremely few cardiac cases fail to show some improvement

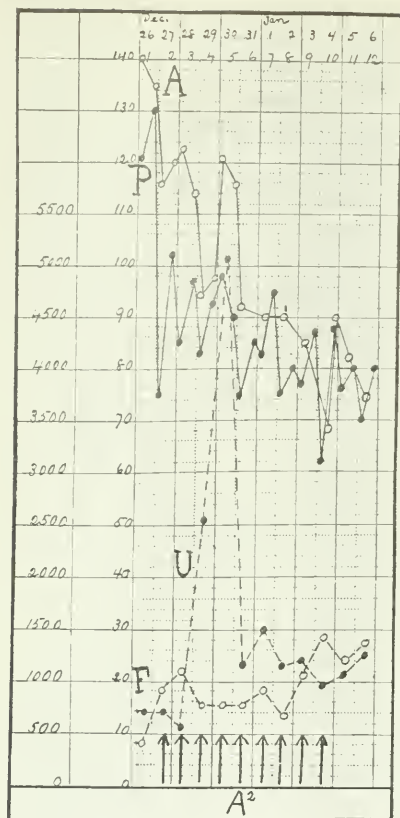


CHART V.—Male, age 57, chronic myocarditis, auricular fibrillation. The first column of figures on the left-hand side of the chart indicates the amount of urine output and fluid intake for each 24 hours expressed in c.c. The second column of figures on the left of the chart indicates the apex and pulse rates per minute. The arrows of A^2 indicate days on which the patient received three doses of 0.1 gm. each of powdered digitalis leaves. A—heart rate counted with a stethoscope over the apex region. P—pulse rate counted at the wrist. F—fluid intake measured in c.c. U—urine measured in c.c. The effect of digitalis in this case was a marked slowing of the heart rate from 140 to 74 and a diuresis with urine increase from 550 to 2525 and 5550 c.c. per 24 hours.

in some of the evidences of cardiac decompensation when adequate dosage of digitalis is used. In 97 consecutive adult cases of my own 81 showed definite symptoms or signs of cardiac decompensation; 90 per cent. of these showed definite improvement in cardiac condition following digitalis therapy. The nine failures resulted from close approach of death in six, aortic aneurysm in one, chronic nephritis that prevented diuresis in one, and there was no apparent reason in one.

That a regular pulse indicates that a poor digitalis effect will be obtained is not borne out by the chart of the following case. (Chart I.)

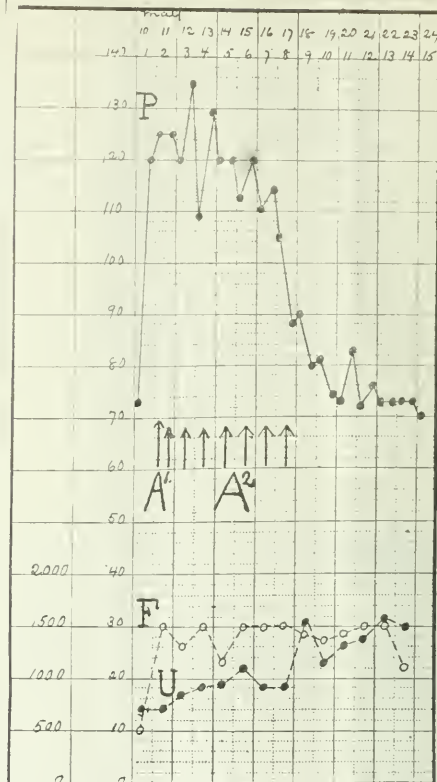


CHART VI.—Male, age 35, chronic myocarditis, regular rhythm. The first column of figures on the left-hand side of the chart indicates the amount of urine output and fluid intake for each 24 hours expressed in c.c. The second column of figures on the left of the chart indicates the apex and pulse rates per minute. Arrow over A^1 indicates intramuscular dose of 1 c.c. of digipuratum. Arrows over A^2 indicate days on which the patient received three doses of 0.1 gm. each of powdered digitalis leaves. P—pulse rate counted at the wrist. F—fluid intake measured in c.c. U—urine measured in c.c. The effect of digitalis in this case was a marked slowing of the pulse from 135 to 72.

This patient was a male of 28 years of age, with mitral stenosis and regular rhythm. Digitalis produced a slowing of the pulse from 110 to 55, and on two days there was a marked diuresis, with urine increasing from 400 to 2700 and 2500 c.c. per 24 hours. Such good digitalis effects were obtained in 72.5 per cent. of a series of patients with a regular rhythm studied by me.

That striking digitalis effects are confined to patients with auricular fibrillation is not borne out by my experience, for in 97 consecutive adult cases, of which 40 had regular rates and 57 fibrillated, definite digitalis effects were obtained irrespective of regular rhythm or fibrillation, the percentage being 72.5 per cent. for

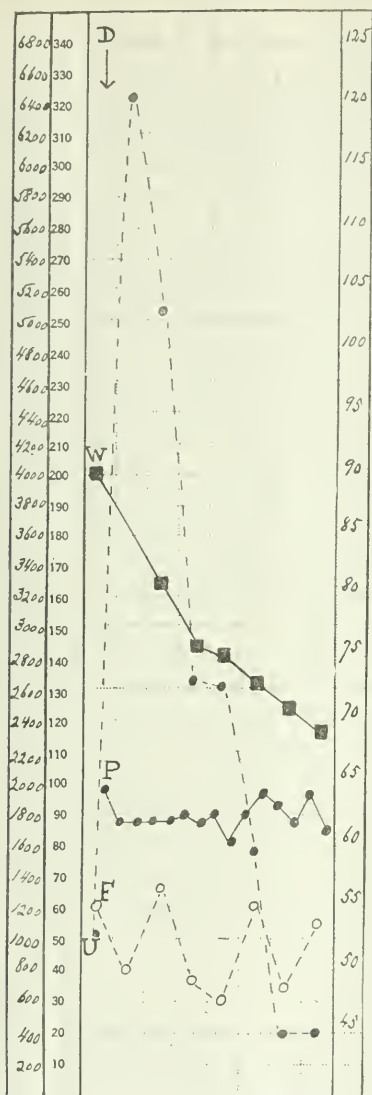


CHART VII.—Male, age 43, chronic myocarditis, hypertension, rhythm regular. The first column of figures on the left hand side of the chart indicates the amount of urine output and the fluid intake for each 24 hours expressed in c.c. The second column of figures on the left of the chart indicates the apex and radial pulse rates per minute. The column of figures on the right indicates the weight of the patient in kilograms. D= single dose of 2.3 gm. of powdered digitalis leaves given at 10:30 a. m. P=pulse rate counted at the wrist. F=fluid intake measured in c.c. U=urine measured in c.c. W=weight of the patient in kilograms. The effect of digitalis in this case was to produce a very marked diuresis with increase of urine from 1000 to 6425, 5650, 2625 and 2600 c.c., and a decrease in body weight of 21.4 kilos, or 47 pounds.

regular rhythm and 75.4 per cent. for auricular fibrillation.

As to a slow pulse indicating a poor digitalis effect, the charts of the following cases show that this does not hold true. The first patient was a male, age 60, with chronic myocarditis and regular rhythm. In this patient the effect of digitalis (Chart II) was a very moderate slowing of the pulse rate from 85 to 60, an increase in urine output from 625 to 975 and 2300 c.c. per 24 hours, and a decrease in body weight of 7.8 kilos, or 17.2 pounds. The second patient was a female, age 45, with chronic myocarditis and auricular fibrillation. The effect of the digitalis in this case (Chart III) was a diuresis, increasing the urine to 2250 c.c. in 24 hours, and a decrease in body weight of 7 kilos, or 15.4 pounds.

As to aortic insufficiency being a contraindication for digitalis, it is generally held now that digitalis does not at all increase the probability of the heart stopping in diastole on the theory that digitalis prolongs diastole in its slowing effect on the heart and so increases the regurgitation of blood back from the aorta, leading to overdistention of the left ventricle. Perhaps excellent digitalis effects are not obtained as regularly with aortic insufficiency as with other valve lesions, but often they are extremely satisfactory, as shown by the chart of the following case. This patient was a female, age 28, with aortic regurgitation and mitral stenosis and regurgitation. She had auricular fibrillation. The effect of digitalis (Chart IV) was to slow the apex rate from 190 to 70 and cause a disappearance of the pulse deficit.

The statement that myocardial degeneration is a contraindication for digitalis is not in harmony with the striking effects obtained in auricular fibrillation, which is an indication of myocardial disease. Nor is it in accord with the splendid results of digitalis obtained in chronic myocarditis, as already illustrated by Charts III and IV. Chart V, of a middle-aged man with chronic myocarditis and auricular fibrillation, shows particularly well a digitalis effect with slowing of the apex rate from 140 to 74 and a diuresis from 700 to 2550 and 5100 c.c. per 24 hours. Even with pulsus alternans, one of the best indications we have of severe myocardial disease, splendid results may follow digitalis, as shown in the following case. Here, in a man of middle age with chronic myocarditis, the electrocardiograms showed a regular cardiac rhythm, but tracings from the brachial artery indicated a marked degree of pulsus alternans. Digitalis under these conditions, however, produced (Chart VI) a marked slowing of the pulse from an average of 125 to 72. In just the same way, hypertension, arteriosclerosis and angina pec-

toris are not contraindications for digitalis. With all of these excellent digitalis effects are obtained. The following cases may serve to illustrate this. In the first patient of this group there was a chronic myocarditis with hypertension and a regular cardiac rhythm, in a male, age 45. Digitalis here produced (Chart VII) a very marked diuresis, increasing the urine from 1000 c.c. to 6425, 5050, 2625 and 2600 c.c. per 24 hours, and decreased the body weight by 21.4 kilos, or 47 pounds. In a second case there was hypertension and chronic myocarditis in a woman of 43 who had

a regular cardiac rhythm. Here the effect of digitalis was (Chart VIII) a slight, prolonged diuresis and a decrease in body weight of 15 kilos, or 33 pounds. In a man of 59, with chronic myocarditis, auricular fibrillation, marked arteriosclerosis and a former right-sided hemiplegia, digitalis produced (Chart IX) a delayed decrease in the apex rate from diuresis and a decrease in body weight of 19 kilos, or 41.8 pounds.

Finally a word as to the misconception that nausea and vomiting are due to some undesirable constituent of digitalis that may be removed by pharmaceutical art. Hatcher's experimental work has shown clearly that nausea and vomiting are central toxic effects of digitalis on the vomiting centre and not a local action on the gastric mucosa. My own experience has been that digitalis in its simplest form, namely, as powdered leaves, does not produce nausea and vomiting until other definite digitalis effects are manifest, and that it

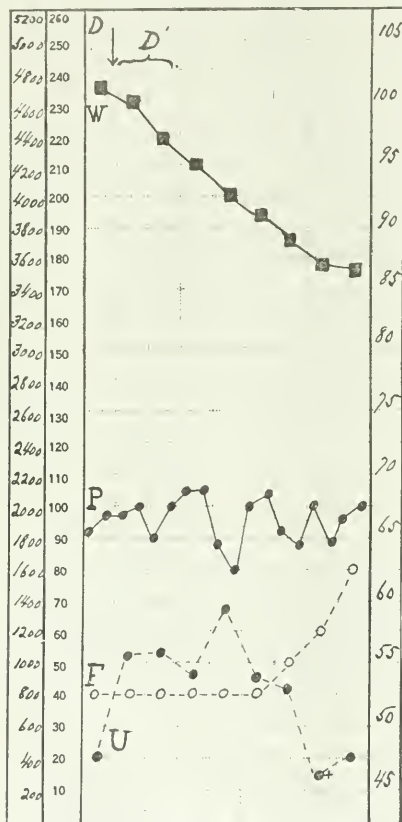


CHART VIII.—Female, age 43, chronic myocarditis, hypertension, rhythm regular. The first column of figures on the left hand side of the chart indicates the amount of urine output and the fluid intake for each 24 hours expressed in c.c. The second column of figures on the left of the chart indicates the apex and radial pulse rates per minute. The column of figures on the right indicates the weight of the patient in kilograms. D—a single dose of 1.2 gm. of powdered digitalis leaves given at 9:30 p. m. D'—5 doses of 0.2 gm. each of powdered digitalis leaves every 6 hours, started at 3:30 a.m., a total of 1 gm. Total D—2.2 gm. of powdered digitalis leaves. P—pulse rate counted at the wrist. F—fluid intake measured in c.c. U—urine measured in c.c. W—weight of the patient in kilograms. The effect of digitalis in this case was a slight prolonged diuresis and a decrease in body weight of 15 kilos, or 33 pounds.

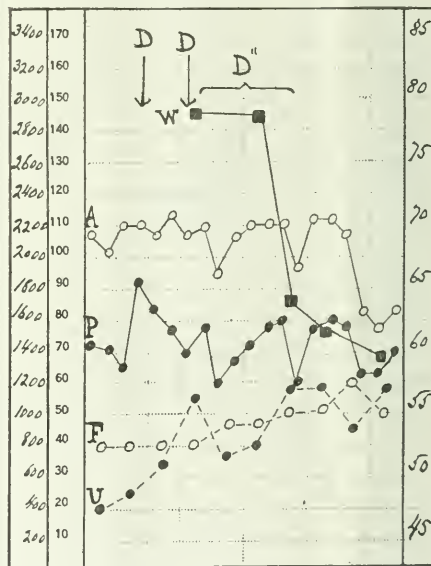


CHART IX.—Male, age 59, chronic myocarditis, auricular fibrillation, arteriosclerosis, old right hemiplegia. The first column of figures on the left-hand side of the chart indicates the amount of urine output and the fluid intake for each 24 hours expressed in c.c. The second column of figures on the left of the chart indicates the apex and radial pulse rates per minute. The column of figures on the right indicates the weight of the patient in kilograms. D—a single dose of 1.8 gm. of powdered digitalis leaves. D'—15 doses of 0.1 gm. each of powdered digitalis leaves every 6 hours, a total of 1.5 gm. Total D—D+D'—3.3 gm. of powdered digitalis leaves. A—heart rate counted with a stethoscope over the apex region. P—pulse rate counted at the wrist. F—fluid intake measured in c.c. U—urine measured in c.c. W—weight of the patient in kilograms. The effect of digitalis in this case was a delayed decrease in apex rate (110 to 78), with a moderate decrease in pulse deficit, a delayed but prolonged moderate diuresis, and a decrease in body weight of 19 kilos, or 41.8 pounds.

may be used advantageously in almost every cardiac patient, even when nauseated and vomiting. I have often tried preparations supposed to have been freed of their objectionable gastric action. The result uniformly is that either they produce nausea and vomiting just as promptly as the simple powdered digitalis, or if they do not, it is because they are not potent preparations, *i.e.*, they do not give satisfactory digitalis effects. My own experience is that digitalis lutea, claimed to have less toxic effects than digitalis purpurea, produces the same nausea when the two are used in corresponding dosage. I doubt whether it is very likely that a digitalis preparation will ever be produced which will give satisfactorily digitalis effects and not cause nausea. I even question whether such a preparation is really desirable. Nausea is, after all, a very useful, easily recognizable effect of sufficient digitalis, and so serves a very useful purpose in digitalis therapy. If one is carefully watching his patients, in many instances full therapeutic effects of digitalis may be obtained without causing nausea, and if nausea does result it need not be severe. Marked nausea and vomiting occur in reverse ratio to the care that is being given to the observation of one's patients. Anyhow, I firmly believe that so far no pharmaceutical art has succeeded in removing the nausea-producing portion of digitalis and leaving behind its needed therapeutic portions. After a fair trial of the various available digitalis preparations, I feel convinced that none are superior to digitalis in its simplest form: the leaves powdered and mixed with a sticky vehicle so as to make a pill.

Digitalis may be given in a single massive dose, or in a modified massive dose method, or in regularly repeated small doses. Any of these methods is effective. The chief difference lies in the length of time needed to produce a result. For the average cardiac case there is no real preference. In a few very severe cases the modified massive dose method is better. Occasionally the single massive dose may be life-saving. When all is done and said, digitalis therapy is very simple. Just give enough of a potent leaf, prepared in any way, by any accepted method of dosage, and the result is most satisfactory in almost every case. So far I have never seen a patient to whom digitalis could not be given when it was indicated by symptoms and physical signs without doing the patient harm, and almost always with excellent results. I know of no cardiac case in which it is necessary to substitute any other drug for digitalis, and I consider powdered leaves of digitalis in pill form a thoroughly satisfactory preparation. In seven years' use at the Peter Bent Brigham Hospital I have seen digitalis leaves of different

strengths, but so far we have never purchased a leaf that was unsatisfactory in its results, and except for periods of testing some particular preparation, we have consistently adhered to using powdered leaves in pill form because the results were thoroughly satisfactory. We have found that using a new sample of leaves on a group of patients was an eminently satisfactory way of finding out the potency of the leaf and the most effective dosage. Standardizing on animals is helpful but by no means essential. For much of the time we have not standardized our leaves on animals and still our results are satisfactory. I am saying this not to decry animal standardization, but merely to show that it is not essential to good digitalis therapy in the hands of one with as much as several cardiac cases constantly on hand for treatment.

QUACKERY. MIRACLE HEALING AND MEDICAL CULTS.*

By ROBERT W. LOVETT, M.D., BOSTON.

If one goes backward in the history of civilization, one finds wherever and whenever one looks into it, three persistent parasites clinging to each successive stage of civilization. These are drunkenness, prostitution, and quackery. The State legislates against them; the Church fulminates against them; the better part of the community from time to time rises and decides to exterminate them; but in the Vedas of India, the classics of Greece and Rome, the early records of Egypt and Arabia, and the writings of the Middle Ages, you will find that parasite with which we are for the moment concerned — quackery — described, deplored, and condemned in terms almost of today.

To maintain such vigor, such persistence and such superiority over all the efforts of Church, State and Society to overcome it, quackery must have deep roots in human nature, and it is of interest to inquire what these roots are.

Causes of Quackery.—The first of these lies in human gullibility. It has never been better expressed than by Butler in the following lines from *Hudibras*:

"The world is generally averse
To all the truths it sees and hears;
But swallows nonsense, and a lie,
With greediness and gluttony."

Our own Barnum phrased it more graphically, if less elegantly, in his statement that "the public loves to be humbugged."

Our special community, however, is well-educated and advanced and should presumably not be the prey of every chance faker. It should

*Read before the Harvard Medical Society, April 11, 1922.

not be; but what shall be said of the gullibility of a community, which not so long ago financed so very handsomely the enterprise of Ponzi, and similar preceding enterprises like Mrs. Howe's bank? The local soil for such enterprises is evidently a fertile one and the community not so enlightened as one might wish.

Further reasons for the persistence of quackery are found in the existence of one of the classes in the community described by Abraham Lincoln in his classical dictum: "You can fool all the people part of the time, and part of the people all the time, but you can't fool all the people all the time." The part of the people that can be fooled all the time includes several groups, each of which is fertile soil for the quack: (1) the very ignorant; (2) a peculiar class which seeks the mystical, the occult, and the irregular; (3) an unreasonable class, which espouses an unpopular cause, simply because it is unpopular, without any investigation of its merits, and which finds in the occult mysticism of India a satisfaction which does not come from the contemplation of facts as they are. One might describe them as a submerged class,—submerged in the matter of reason and common sense.

The proportion of the gullible class in any community varies, but the estimate of a celebrated quack may be of interest. "He was visited by a former playfellow from his native village, who asked how he had got on so well, adding with the frankness of early friendship, 'Thee knowst thee never had no more brains than a pumpkin.' The quack took him to the window and bade him count the passersby. When a hundred had passed the quack asked his visitor: 'How many wise men do you suppose were amongst this hundred?' 'Mayhap one,' was the reply. 'Well,' returned the quack, 'all the rest are mine.'"

A cause which must not be forgotten lies in the earliest development of medicine. The early conception of disease was that it was due to an evil spirit which had entered the body of the sick man and to drive out this evil spirit were used incantations, exorcism, magic, charms, amulets, etc. Traces of this affiliation between medicine and magic persist today, perhaps not altogether unnaturally when one looks back on the thousands of years during which they were affiliated, and the comparatively few centuries in which they have been separated.

On February 6, 1921, in the Municipal Court, of Boston, there was sentenced to a year in prison a Professor L. P., styling himself the 7th son of the 7th son, and holding himself out as a clairvoyant and palmist. He had a birth mark on his breast, which he exhibited, and said was his instrument of cure, which never failed if his patients followed his instructions closely. He promised to cure a young man, crippled with

rheumatism; another son, who was also crippled, and the mother, who suffered from the same affection.²

The family had to sign a contract that they would not eat anything which contained vinegar, and a medicine was left which consisted of cigarette water. The first patient was to rub this on his knees once a day for 4 days, and on the 4th day would be cured. It was added, however, that perhaps for a few days more there would be a slight stiffness in his legs—the result of having been confined to a wheel-chair for many years. The brother was to rub the backs of his ears with the medicine for 3 or 4 days; and the mother was to rub the same medicine on the soles of her feet, also for 4 days. A cash fee of \$22.81 was received, but the professor failed to make a favorable impression on the family, and they did not use the medicine, but instead had him arrested.

The point of the story is that this incident of the presence of the witch doctor in our midst, occurred in Boston in the current year, and the evidence brought out in court showed that this man had been arrested for the same sort of thing before in Worcester and in Maine, and was wanted in Salem for a similar offence.

In the history of the past there is no more amusing group of rogues than the famous quacks of the ages. Facile, specious, without conscience, and with unlimited daring, they come down through the years, not depressed by adversity and always ready to trade on human gullibility.

Comparison of Different Ages of Quackery.
—A question whether or not quackery is as generally prevalent today as it was in the past is of interest. Unfortunately there are no figures at hand from which to make accurate deductions; but one thing is certain—quackery today is decidedly less picturesque. A curious point of comparison is found in two Temples of Health: One flourishing in London, just before the French Revolution, and the other presided over in Kansas City by a man named Carson about 1910.

The original Temple of Health,³ in England, was established by one of the most impudent quacks who ever lived, James Graham by name, who at one time honored Philadelphia by his presence, practising as an itinerant oculist and aurist, but who returned to London and established himself there. His Temple of Health was situated in Pall Mall, with a richly ornamented facade. Two guards, in flowing robes with cuirasses of metal over them, stood at the entrance and collected from each visitor a fee of 6 guineas. When one entered the building, harmonious strains of music from hidden musicians attracted the ear, while subtle perfumes entranced the sense of smell. The visitor progressed to a magnificent hall, where garlands,

mirrors, crystal, gilt and silver, were scattered about with profusion to dazzle the eye.

When the audience was seated Graham entered in gorgeous doctor's robes, and delivered a lecture, at the close of which each auditor received an electric shock through an apparatus concealed in the cushion of his seat. When this penetrating intimation that the exercise was ended was received, the audience naturally rose spontaneously and departed without delay.

The modern Temple of Health in Kansas City seems to have been a more modest establishment and was described in the *Journal of the American Medical Association*.⁴ The proprietor, Carson, must have heard of the other Temple of Health, because he also provided entertainment; but the entertainment was of a different character, and the one which made the most trouble was an address by the Congregational minister of the town, who was subsequently somewhat criticized for lending his aid to this enterprise. Carson treated his patients by means of "vital force," rubbing them with vaseline mixed with red pepper—the latter producing the tingling due to the transmission of the "vital force." "Later he improved on this 'treatment' and had his assistants give out slips of tissue paper which he had 'magnetized.' These slips the patients were instructed to pin on their nightgowns between the shoulder-blades." Carson was exposed in the *Journal of the American Medical Association*, and in the *Independent*, and the State Board of Health of Missouri eventually prosecuted him for practising medicine without a license.

Types of Quackery.—Taking quackery and irregular practice from the time of Hippocrates (460 B.C.), the Vedas of India (600 B.C.), or the time of Galen, the stream flows down through the centuries in five main channels, and in analyzing these it will be interesting to see how little is new in modern cults. These channels are as follows:

1. Nostrums and Proprietary Medicines.
2. Miracle Healing.
3. Mental Healing.
4. Methods of Manipulation.
5. The Amateur Quack.

1. *Nostrums and Proprietary Medicine.*—These are sold in part with criminal intent and in part, probably, by stupid people, who believe in the efficacy of their concoctions. There is, however, no question of the intentions of the man who sold a morphine cure, containing morphia, or an inert cancer cure, or a disguised cocktail to innocent persons who were appreciative of the subsequent comfortable feeling, now described as "the kick," but ignorant whence it came. But thanks to *Collier's Weekly*, the *Ladies' Home Journal*, and the *Journal of the American Medical Association*, this busi-

ness has been thoroughly exposed; restrictive laws have been passed; extravagant claims can no longer be made on labels, and the United States mails are closed to such people on proper evidence. The account of the methods of these people and the crusade against them is to be found in a small book, called "The Great American Fraud," by Samuel Hopkins Adams, in a series of publications bound by the American Medical Association, and in weekly analyses of patent medicines and nostrums in the *Journal of the American Medical Association*. This wicked and cruel fake has been greatly damaged and the subject will not be dwelt on here to any extent.

The antiquity of this branch of quackery is doubted. So long as medicine consisted of charms, amulets, and incantations, not much could be done in the way of faking imitations; but when remedies became established, so did nostrums.

In this connection the most astonishing story in the whole history of quackery is the achievement of Joanna Stephens, a famous quack practising in London in the middle of the 18th century, whose remedies were supposed to have solvent action on stone and gravel in the bladder and kidney. "Not all the testimonies of Christian Science, Dowicism, the Emmanuel Society, and Lourdes, put together can show anything like such a list."⁵ Being a generous-minded woman, Mrs. Stephens had proposed to make her medicine public on consideration that the sum of 5000 pounds should be raised by subscription and lodged with a banker. The advantage of making public this wonderful remedy was taken up by the press, which urged that no humane or patriotic person could do otherwise than subscribe to the fund. In the list of subscribers are the names of bishops, dukes and duchesses, earls and baronets; but the subscription reached only 1336 pounds. Mrs. S., however, stood out for the original price, and application was then made to Parliament for that sum; and after a commission had seriously inquired into the cures, it was voted that the sum be granted. It is melancholy to read that in the list of those who signed the certificate, which was required by Parliament, were the names of such well-known medical men as Cheseldon, Caesar Hawkins, Samuel Sharp, and David Hartley. Mr. Hartley published some cases and experiments, which seemed to him to show sufficient evidence of the dissolving power of the remedy, in the urine of such persons as took Mrs. S.'s medicine. He concludes his statement in what seems to us today a rather illogical manner: "I, therefore, persuade myself that Mrs. S. will appear to you in a different light from common pretenders to nostrums and that you will not think the measures that have been taken for the pub-

lication of her medicine any encouragement to imposter."

When the grant of 5000 pounds, which in those days was a very considerable sum, had been made the secret was revealed. The remedy consisted of a powder, composed of egg shells and snails, calcined by heat, and a decoction made by boiling some herb along with soap, honey, swine cresses and a mixture of seeds of carrot, burdock and ash. With the knowledge of the remedy, interest in it ceased; but Mrs. Stephens had the money and Hartley died of the disease which the remedy was said to cure.⁵

2. *Miracle Healing*.—The subject of miracle healing is of established antiquity, but whether one view it from the point of view of the past or of today, it is too closely allied with religion to be discussed without the danger of giving offense.

It is to be divided into three main divisions: (a) miracles in response to prayer; (b) miracles claimed by Christian Science, such as the cure of cancer; and (c) miracles by the laying on of hands, with or without prayer. The first named is perhaps best seen in the miracle churches of Lourdes and St. Anne de Beaupré.⁷

In the work of Hickson, who was in Boston in 1919, and whose services were attended by great throngs of people, one finds the type of religious healer who works without financial reward. There is, however, from the medical point of view, danger in too wide a publicity of such statements as the following, credited to Hickson: "God can heal cancer as well as he can heal a headache; many so-called organic diseases have been healed through prayer. I say this out of experience."⁸

But along with the really religious healer, who uses the laying on of the hands, goes the unscrupulous quack, who also lays on the hands for pecuniary reward alone, without claim of special divine power.

A man of this sort visited Boston some years ago and gave public exhibitions in a large hall. I was one of the audience, and I have also attended the exhibitions of a man named Schlatter, given in a theatre. The former laid on hands, rubbed the patient's ears, told him he was better, or cured, and to get up and walk. Many of the people treated were obviously not confederates, and I saw instances of deafness apparently cured, lameness from rheumatism greatly improved, and cases where the sufferer said pain had wholly gone. The majority of patients, and all who were helped, were told that further treatment was necessary, for which they must report at a certain hotel the following day, and would be expected to make proper remuneration.

The daily press contains frequent communications upon miraculous cures, particularly of cancer.

According to one's mental make-up he either believes, or does not believe, in healing by miracle.

3. *Mental Healing*.—In this matter, also, too free discussion is likely to bring one into contact with religious belief and the subject can be dealt with only superficially. It may be divided into three main groups: Christian Science; The Emmanuel Movement; and Mesmerism.

A cure by mental healing implies an action of mind on body, not necessarily a direct miracle with the reversal of Nature's laws, but a healing by the natural mechanism of the body. This is best exemplified in Christian Science, which also figured in the last section; and those interested will find ample literature at their disposal.

The Emmanuel Movement was based on the assumption that medical men did not sufficiently use the spiritual and mental aspect of therapeutics in their treatment of the sick, and that this could be supplied from the outside, preferably by the Church. The enterprise has been free from any mercenary taint and has endeavored to work with the physicians. There is plenty of literature concerning it for those interested. One quotation may be given.—"Chronic ailments of every sort yield as if by magic to the benign influence of suggestion:—headache, toothache, neuralgia, rheumatism, insomnia, epilepsy, hysteria, neurasthenia, alcoholism, morphine, tobacco, stammering, sciatica, St. Vitus' dance, nervous dyspepsia, constipation, goitre, tumors, paralysis, etc. In this, and a hundred other ills, the law of suggestion understood by some friend, minister, or physician, can bring the blessing of health to thousands of pain-racked sufferers."⁹

In the light of this remarkable power, it is rather difficult to understand why one should give up after the first attempt, yet the following quotation shows us that such has at times been the case. "I will say frankly that I have not attempted the cure of locomotor ataxia, after my first case, which was not a cure, although I was able to cure him of his perverted moral troubles. . . . I have not had universal success in treating the morphine habit."¹⁰

Healing by Hypnotic Suggestion and Mesmerism.—This measure, a legitimate and useful one in the hands of the qualified physician, suggests glorious, golden possibilities, in the hands of quacks, which have been largely and harmfully exploited. This cult is credited to Mesmer, for whom it is named. He summed it up as follows: "There is only one malady in all the world and I have the remedy for that at the end of my finger." Mesmer staged his private practice very alluringly and appeared

in a purple robe, embroidered with brilliant flowers, a color scheme which was characteristic of his daring in other matters. Holding the patient in his arms, while sweet or stimulating music was played, he gazed into her eyes and expressed his eagerness to cure. Hysteria, spasms, or hypnotic calm resulted, after which the patient was completely cured of all her ills. Naturally, only the rich were able to avail themselves of this wonderful opportunity, but Mesmer loved his fellow men like Abou Ben Adhem, and grieved that they should be shut out from the benefits of his wonderful powers; so he magnetized a tree on the Boulevard, and by standing under this penurious invalids could receive the benefits of health without expense.

4. *Methods of Manipulation.* — Bone-setting, osteopathy, and chiropractic.

All other forms of irregular healing have at the present time largely given place to those by methods of manipulation. Of the three manipulative sisters, bone-setting, osteopathy, and chiropractic, bone-setting, as the oldest of the three, deserves first consideration.

Bone-setting. — Reference to manipulative treatment, akin to bone-setting, is found as early as the days of Homer, and it is probable that its origin is even earlier than this, although actual record of it seems to be lacking. "Among the other camp followers of medicine were the gymnasts or Iatroleiptes, who, besides exercises, practised innuement of the body. They were also, it would appear, bone-setters, and were naturally led to give first aid in all accidents and in many diseases, and to advise as to diet and regimen."¹¹

Howard Marsh¹² gives us the following clue to the origin of bone-setting: "Chirurgery, or hand-working, began in attempts to pull in displaced bones, to straighten distorted joints, and to restore movement to stiff limbs. In this dawn of the art nothing was known of anatomy or pathology; it was only seen that a limb was bent or stiff, and force was employed to overcome the defect, just as it might be used to straighten a crooked bar, or loosen a rusty lock."

In 1599 we find reference to bone-setting in Madrid,¹³ and a book entitled, "The Complete Bone-setter,"¹⁴ published in England in 1665, is suggestive that bone-setting was flourishing in that century. From that time on, the art has been much in vogue, especially in England. It has never existed as a science, but the art has in general been secretly handed down from father to son, and bone-setting families are known in America to this day, and a well-known bone-setter, Daniel Putnam, was established in Connecticut in 1670.

That a system of manipulation persists for something over 2,000 years is suggestive that

it probably possesses some therapeutic value, and although we might marvel at the pretensions and notoriety achieved by the celebrated bone-setter, Mrs. Mapp, in the middle of the 18th century, we will find that Mr. Barker, of Park Lane, London, does not today fall so far behind her.

Mrs. Mapp was the daughter of a famous bone-setter, and the sister of the celebrated Polly Peachum, who married the Duke of Bolton. She was popularly known as "crazy Sally," and was a strolling performer until Epsom offered her 100 guineas to continue there for a year, so great was her success. She married at Epsom, but unhappily, because Mr. Mapp was evidently temperamental and, after thrashing her several times, he went away with a large part of her earnings. She was much in the public press, and her cures were said to be too many to be enumerated. Her bandages were neat, and her skill in reducing dislocations and in setting fractures was said to be wonderful. If it was known that she was going to the theatre, that was sufficient to fill the house. Her own estimate of herself is shown by an interesting incident: When passing through Kent street, she was taken for one of the King's German mistresses, who was unpopular. A mob gathered and used threatening languages. Mrs. Mapp, thereupon, put her head out of the window and cried: "Damn your bloods, don't you know me? I am Mrs. Mapp, the bone-setter," and drove away amid the applause of the multitude.¹⁵

Mr. Percival Pott, the celebrated surgeon, who was her contemporary, spoke of her claims as "the most extravagant assertions of an ignorant, illiberal, drunken female savage."¹⁶

At the present time in London there is a bone-setter, Mr. Barker, nearly as well-known as Mrs. Mapp was, and about whose head has raged a storm of controversy. He is the legitimate successor of the great bone-setter Hutton, having served apprenticeship under Atkinson, who was Hutton's pupil. He claimed at his trial, in 1911, that he had at that time treated 30,000 cases, with 90 per cent. of success, most of whom had previously consulted, ineffectually, well-known practitioners. The trial alluded to above was the result of a suit for negligence against Mr. Barker, brought by a patient for manipulating a tuberculous knee twice, a proceeding which was followed by amputation. So far as one can judge from the newspaper reports, Barker made none too good a showing at the trial, but inasmuch as the jury awarded a verdict of only \$120, his offence was evidently regarded as not being a very serious one.

The *Times*¹⁷ has proclaimed him with his anesthetist, Axham, as "benefactors of the public," and during the war a petition was addressed to the Archbishop of Canterbury, praying him to confer the Lambeth degree of M.D.

upon Mr. Barker. The petition was not successful.¹⁸ In the petition it was stated that he was probably doing more to relieve suffering humanity than any living surgeon. The Prime's refusal to grant the petition was prefaced by the hope that "some means may be found of marking the country's appreciation of what I can but call Mr. Barker's eminent services to sufferers."¹⁹

His patients have included members of both houses of Parliament, and their families; the Episcopal Bench; the Cabinet; the Navy; the Army; members of both Universities; prominent sportsmen; barristers; soldiers; and frequently registered practitioners themselves. They come from the United Kingdom, India, Australia, New Zealand, Africa, Canada, and the United States.

The standing of Mr. Barker is curious, for on the one hand a proposal to knight him has been made, and on the other hand his anesthetist, Axham, has been disqualified from practice because he etherized for an irregular practitioner. The case has been argued in Parliament and the bitterest views, on both sides, have been expressed.

Mr. Barker has offered to explain his methods to a properly constituted committee of medical men, but Mr. Barker is irregular and, therefore, cannot be dealt with by the English profession. Yet Mr. Barker has not become regularized. Without casting aspersions upon his reasons for wishing to remain irregular, the following story, which appeared in the French papers²⁰ a few years ago, may be of interest. A quack, at a fair near Paris, was selling nostrums, drawing teeth and attracting an enormous crowd, who parted readily with their money. The offence against the French law was so flagrant that he was arrested and taken to a tent, where he was requested to show his diploma. To the surprise of his captors he produced a perfectly authentic degree of Doctor of Medicine from the University of Paris. The police, thereupon, began to apologize, but he cut them short and begged them to say nothing of what they had seen. "For," he said, "if the people know that I am a qualified doctor I shall have no more customers."

The *English Review* sums up the Barker situation as follows: "The Faculty cannot, and Barker shall not;" but Sir Arbuthnot Lane, in the course of a series of clinical lectures, put it more correctly when he said: "The bone-setter flourishes because the surgeon is deficient in a certain knowledge."

Fortunately we have a scientific analysis of bone-setting by Dr. Wharton Hood of England, M.R.C.S., published 50 years ago.²¹ Hood had an unusual opportunity to study bone-setting. It came about in this way: His father, Dr. Peter Hood, attended Mr. Hutton, the famous

bone-setter, through a long illness and refused to take a fee after Mr. Hutton's recovery. The latter, out of gratitude, offered to explain all the details of his practice and art. The senior Mr. Hood was unable to avail himself of the opportunity, and the invitation was then extended to his son, who attended Mr. Hutton's office hours and was taught by him. Later, during another illness of Mr. Hutton, Hood took charge of his charity patients, and upon Mr. Hutton's death he published an analysis of the method.

Mr. Hutton came of a family of bone-setters, but was an upholsterer during his earlier years. Referring to him, Howard Marsh,²² who was no friend of bone-setters, described him as "*facile princeps*" and "probably as good a bone-setter as ever lived." . . . "He treated anatomy with contempt; he neither knew nor wanted to know anything about it. He was a kind-hearted and perfectly honest man. He neither knew nor cared to know what the real condition was with which he was dealing, so that both he and his patient were playing a game of chance. He often said: 'I can cure you; what more do you want?'" Dr. Hood relates: "He had but a plain education, was entirely destitute of anatomical knowledge, and firmly believed the truth of his ordinary statement that the joint was out." Hood was at first afraid of using too much force, but after considerable experience with Hutton concluded that this was not to be feared. One must be careful, however, not to forget the skill and dexterity of Mr. Hutton in this relation. That accidents may and do occur in hands less skillful than Mr. Hutton's is well known, and was called attention to by Paget, who spoke of a fractured arm, and Proll reported in the *Lancet* two cases where suppuration and death had occurred after manipulation.

The manipulation consists in finding the spot that is painful to pressure, fixing it with the thumb, grasping the limb with short leverage on both sides of the joint with the thumb still kept in place, submitting the joint to flexion or extension or both, or putting it through other motions in the accomplishment of which resistance is encountered. The resistance is minimized by rotating the bone on its own long axis. Details of the manipulation are given in Wharton Hood's book.²³

The treatment of spinal lesions is most important to remember in considering the relation of bone-setting to osteopathy, remembering that it was published in 1871 and osteopathy "discovered" in 1874, and one has only to read the description of the manipulation for treating spinal lesions in Hood's book and the description of the treatment of the same condition in "*Osteopathic Mechanics*,"²⁴ published in 1915, to see that the methods are practically identical.

Before proceeding to the derivatives of bone-setting, osteopathy and chiropractic, it may be well to consider for a moment in what way bone-setting is of the value that it undoubtedly often proves to be.

The surgical world has been on the whole indifferent to the late effects of trauma on joints in producing slight degrees of stiffness or restricted motion. It is a good surgical axiom that a partially stiff joint is always a vulnerable one. The stiffness is due to adhesions, intra-articular, extra-articular, capsular shortening, adhesions of tendons or muscles, and to adaptive muscular shortening. Why they are as detrimental as they surely prove themselves to be is not always easy to explain, except that they restrict normal motion and consequently normal contacts of articular surfaces. If unilateral they cause a twist of the joint in its use, and in use the adhesions are constantly pulled on and irritated, and many a troublesome joint needs only to have its full arc of motion restored to become useful. That the spine is the part of the body on which two of these manipulative cults center their attention seems explained by the fact that between the occiput and sacrum there are 134 separate joints.

Osteopathy on analysis seems to be bone-setting, not much modified, but to which has been added a fantastic and unproved pathology to account for the claimed efficiency of its methods. An interesting quotation may be taken from one of the standard osteopathic text-books: "There is no doubt in my mind as to the similarity existing between the conditions which were recognized by so-called 'bone-setters' and those which have formed the basis for the successful advance of osteopathy. The difference lies principally in the educational qualifications."²⁵ After reading the osteopathic theory of disease one comes almost to admire old Mr. Hutton, who openly announced that he neither knew nor cared to know anything about anatomy.

Osteopathy is said to have originated with Dr. A. T. Still, who first announced its principles in 1874. When he was a boy he suffered from headache. One day he lay down under a tree with the back of his neck in a swing rope and fell asleep, and when he awoke the headache was gone. In 1874 he began devoting his whole time to the development of his science, and it is noted in osteopathic books that he received the same treatment that was accorded to Harvey in the 17th century when the latter discovered the details of the circulation of the blood.²⁶ In 1892 he established a school.

The theory of osteopathy as advocated by Still, who was a doctor of medicine and a veteran of the Civil War, is that the human body

is an exact mechanism properly balanced; that health consists in harmonious adjustments along mechanical, mental and dietetic lines; that slight disturbances of anatomic relations have manifold and far-reaching effects on bodily health and that treatment consists in the readjustment of these displaced parts. "These disturbed relations may occur in any of the structures of the body, so that we may have faulty adjustments of bones, ligaments, muscles, nerves, organs, or even of cells."²⁷ Obstruction in the spinal column from vertebral displacement may be occasioned at the intervertebral foramina through which emerge nerves and vessels.

The central thought of the science of osteopathy is the "lesion," which has been defined as "any structural perversion which produces or maintains functional disturbance. . . . Lesions are the result of injury, direct or indirect. . . . The term 'lesion' has been used in a restricted sense to mean any anatomical irregularity of a joint abnormal to the individual and the result of injury originating without the joint and intrinsic or extrinsic to the organism itself. . . . A subluxation is an immobilization of a joint in a position of normal motion, usually at the extremity of a given movement."²⁸ A more modern point of view than this would be to substitute the term "osteopathic lesion" for "subluxation." Just how these lesions produce the effects attributable to them clinically is not explained in the books consulted, and "Osteopathic Mechanics" passes at once to the details of adjustment.

With regard to this new pathology, in favor of which we are to discard all our present ideas, it must be remembered that mere assertion does not establish facts.

Voliva, the successor of Dowie in Zion, under the date of February 1, 1922,²⁹ asserts that the world is a flat plain surrounded by ice and that the sun is a small body about 40 miles in diameter, 3000 miles away. The sky is a dome of solid material from which the sun, moon and stars hang like chandeliers from a ceiling. Although a certain number will believe this assertion, the larger number will demand proof. And so, in valuing osteopathy, one has a right to ask for proofs that this new osteopathic pathology is correct.

It is therefore interesting to examine the tangible evidence as to this, which has so far been offered. Three varieties of proof are available:

1. In the dissecting room and at autopsy: The claim is made that dissections of bodies reveal anatomical lesions associated with disease of organs; these observations have been made at osteopathic colleges, but such changes have not been observed in the dissecting rooms of the medical schools of the world. The claim

that these "lesions" are found is, therefore, apparently not substantiated by sufficient evidence, which is eagerly awaited.³⁰

2. The x-ray: It is claimed that the x-ray has frequently shown an osteopathic lesion which disappeared after reduction. The experience of the medical profession is otherwise. It has only to be remembered how slight a distortion in the line of the shadow will produce the appearance of a displacement in an x-ray, and that the reading of an x-ray differs greatly. I can only state that in my personal experience in one or two instances I have been privileged to have taken in my own x-ray room, under fixed conditions, radiographs before and after the so-called "reduction" of a lesion by others. The closest analysis of the radiographs before and after failed to show the slightest change in the position.

3. Animal Experimentation: Bulletin V, of the A. T. Still Research Institute of Chicago, Illinois, published in 1917, is a contribution to the study of the effects of experimental lumbar "lesions." "Lesions" were produced by forcible subluxation in which it is amusing to note that great care was taken to prevent any injury to the articular tissues. "Lesions" were also produced by gentle taps near the spinous processes of the selected vertebrae. These animals were then studied. So far as one can judge from the decidedly imperfect x-rays reproduced as evidence, a partial fracture of the spine was not uncommon. Various organs were then studied with regard to the effect of these lesions, but the work seems loose and very disreputable, and is far from convincing. In this experimental work two especially long steps are taken by making assumptions which will demand better proof before animal experimentation can be of value. These assumptions are: (1) The frequency of osteopathic lesions of a demonstrable character existing in human beings. (2) That such lesions can be duplicated in quadrupeds by wrenching, tapping and manipulating their spines.

My practical experience with osteopathy is not small nor in any way unprejudiced, but is, nevertheless, perhaps worth mentioning. At least half or two-thirds of the patients who consult me have been first under treatment by osteopathy. These, of course, represent the unsuccessful cases, and conclusions drawn from an analysis of them may not be fair, and I presume that a good many of my own failures drift into the hands of the osteopath, but in analyzing the method pursued by them in the cases alluded to, I have not drawn very favorable conclusions as to their efficiency or reasonableness in a fair proportion of the cases. For example, to assume that the disability of poliomyelitis arises from a lesion of the vertebral column is manifestly fantastic and not

supported by the slightest evidence. And the treatment of this disease, based on the theory that improving the circulation in the cord is going to do any good, is decidedly unreasonable and very detrimental to the patient in wasting time in the early stages of the disease when reasonable therapeutic measures might accomplish much.

The information given above regarding osteopathy has been derived from a study of books, not to be found in the Boston Public Library, the Boston Medical Library, or the Library of the Harvard Medical School, a condition which seems unfortunate. Nothing, I believe, would do more to discredit the present osteopathy than to make its literature available to medical men and to the more intelligent public.

There are said to be 5,000 to 6,000 osteopaths in the United States. They are registered and practise in forty-two states. In Massachusetts they take the same examination as that required for registration in medicine, and in the eyes of the law possess the same qualifications as regularly educated physicians. Osteopaths who were in practice at the time the registration law went into effect were licensed to practise without examination.

With regard to bone-setting³¹ and osteopathy there can be no question that rough manipulation may cure some cases where gentler methods have not succeeded, but at the same time³¹ in many cases cured by the bone-setter, relief might have been afforded by prolonged massage, etc., over a longer period. Apparently bone-setting is most successful in traumatic affections of the joints and spine where recovery has been delayed by adhesions and stiffness.

The unqualified bone-setter in general says that the joint is "out" and that he reduces it. The osteopath says that there is a "lesion" and that he "adjusts" it. The latter adds to bone-setting the explanation of infections and most other diseases by assuming spinal lesions which in an unexplained way affect the system.

Sir Jas. Paget advised the profession in 1867 to "copy what is good in the practice of bone-setters," but manipulative treatment has been and is still neglected, and overlooked by the medical schools and the surgeons, and we cannot, and must not, shut our eyes to the fact that bone-setting is at times effective where the routine surgical measures fail, and that osteopathy is only modified bone-setting.

Chiropractic.—When we come to the third and youngest, and least reputable of the three manipulative sisters, Chiropractic, we take a definite step downward. *The Journal of Osteopathy* speaks of chiropractors as "fakers."³² but the Supreme Court, of Montana, handed down a decision that "chiropractic is nothing

more nor less than osteopathy under another name."³³

Chiropractic was "discovered" in 1895 by Mr. D. D. Palmer,³⁴ who had had some experience as an unsuccessful magnetic healer, in the following way, as related by his son, J. J. Palmer.³⁵ "Harvey Lillard was a janitor in the building in which father had his office at the time, in the Ryan block at Davenport, Iowa. Harvey came in one day thoroughly deaf. Father asked him how long he had been deaf, and he told him seventeen years. Father said, 'How did this occur?' Harvey said, 'I was in a stooped, cramped position, and while in that position I felt something pop, and heard it crack in my back.' Father looked him over, laid him down on the cot, and there was a great subluxation on the back. Harvey said he went deaf within two minutes after that popping occurred in the spine, and had been deaf ever since, seventeen years. Father reasoned out the fundamental thought of this thing, which was that if something went wrong in that back and caused deafness, the reduction of that subluxation should cure it. That bump was adjusted, was reduced, and within ten minutes Harvey had his hearing, and has had it ever since."

In this simple way Chiropractic was born. With regard to this birth of Chiropractic, an amusing incident occurred in the trial at which Mr. Palmer testified. He was asked whether his father did not give birth to Chiropractic. He gave a negative answer, stating that his father, not being an obstetrician, could not give birth to Chiropractic. Mr. Palmer seems to have confused in his mind the relative function of the obstetrician and the mother in labor, and seems to have the idea that it is the obstetrician, and not the mother, who gives birth to the child.³⁶ Mr. D. D. Palmer was later succeeded by his son, Mr. J. J. Palmer, the present head of the Palmer School of Chiropractic (the mother school), to be described later. The junior Mr. Palmer received a grade school education, and at the age of 11, being "kicked from home," as he expressed it in Court, was a practitioner at the age of 12. He subsequently took the degree of D. C. from his father's school and still later received the honorary degree of Ph.C. from the faculty of the same school, of which faculty of eight his wife was a member.

The basis of the so-called "science" is the so-called "chiropractic subluxation" of a vertebra. This means a slight or partial separation between the articulations so that they are not exactly together. When a subluxation occurs there begins a pressure on the nerve coming thru the intervertebral foramina and this shuts off the flow of life force going thru that nerve and acts as a rheostat or booster to the cur-

rent going through it. Chiropractically speaking, disease is simply a register as to the amount or excess of current that an organ receives at the end of the nerve: Slight pressure "steps up" the current; heavy pressure paralyzes. One would, therefore, adjust for cancer or gonorrhoea.

This theory of disease is too fantastic, crude and unsupported to warrant discussion, but it spells danger to the community and to what lengths it will go can only be appreciated by reading the testimony of B. J. Palmer in the Wisconsin courts.³⁷

One passes next to the feature which is most prominent in the chiropractic advertisements: that is to say, the commercial side of the science. As an instance of the chiropractic attitude, the following figures (no source quoted), are taken from the *Metropolitan Magazine*³⁸ advertising section. "The following statistics of the 1818 influenza epidemic are respectively submitted; one out of every sixteen patients died under medical treatment; one out of twenty-seven under osteopathic treatment; one out of 513 under Christian Science; one out of every 886 patients under chiropractic adjustment." This advertisement is put out under the name of the Universal Chiropractic Association, Davenport, Iowa. It is interesting to note that this town is the headquarters of the Palmer School, which will be spoken of presently.

Another advertisement speaks of chiropractic as "the great modern school of healing physical ills," and goes on further to state that "the hand which does the work must be trained and skilled, and guided by the well-trained brain of the chiropractor. The use of the hand alone is not sufficient; the head must back it up, guide and direct its progress." This startling statement, that it is necessary to use the head, is derived from the annual announcement of the American University, chartered by the State of Illinois, and located in Chicago.

It may be interesting to show along what lines this university proposes to teach the scientific basis of chiropractic. The home study course of the university confers the degree of D. C., Doctor of Chiropractic. It is gratifying to note that the course is "the most complete, most concise, and most practical ever prepared." The complete course comprises 16 sections, each section contains from 3 to 5 lessons—65 lessons in all.

In addition to the instruction which is placed at \$105 for the entire course (reduced for cash), the student receives absolutely free a full set of eight large anatomical and physiological charts, regularly valued at \$15, a bound manual which furnishes a complete guide to them; and a complete set of four regional compendiums, whatever these may be; a set of five illustrative spinal columns; a complete set of

five colored nerve pain area and commusion charts, worth \$16.50. To poor, but deserving students, the following equipment is also given free upon payment of the enrolment fee: one urine test case and set; one stethoscope; one nickel-plated tongue depressor; one metal pleximeter; one tested clinical thermometer; one genuine Flint pattern percussive hammer; one illustrated text-book on the Theory and Practice of Osteopathy; one De Luxe Dictionary of 1,000 pages; one magnificent complete set of eight grouped lithographed anatomical and physiological charts; one bound manual. Their generosity does not, however, stop here, for, at the completion of the course, the regular University diploma is conferred without extra charge upon the students with the degree of Doctor of Chiropractic; and, in order to give the graduate "the right start," 100 adjustment cards, "which you give to patients," and "1000 pamphlets with your name and address printed on them, which tell prospective patients all about chiropractic," are also given free. According to the prospectus, "this advertising material will bring you into prominence and should quickly crowd your office with patients."

Each student is obliged to sign an agreement: "I hereby agree to hold all instructions and information, which I receive from you in absolute confidence, and will not permit others to see the lessons or to study the course."

The requirements for admission to this course are surprisingly simple. "Any man or woman of average intelligence, who has a common school education, may acquire a thorough, complete, and efficient knowledge, in the art and science of chiropractic by means of the instruction" given in this course. All that is required on the part of the student is "a conscientious persevering study of the lessons, and a faithful observance of the rules and practice given therein." "Many elderly persons have taken up the profession and have done well with it." The age advised for beginning the course is 21 years for men, and 18 or more for women; but many students and graduates are over 50, and certain students over 60 have done most excellent work.

Another advantage of the course offered is that the student is able to practise his profession during the course. It is not stated at what period of instruction one becomes proficient, but students are often able to make money while they are learning. For example, Dr. B. earned over \$200 while taking the course, and Dr. D. made from \$3 to \$5 every day while studying. After 10 weeks' study, Dr. S. could earn \$35 a week.

It is, therefore, evident that as a financial proposition, as exemplified in this course, chiropractic offers very great inducements. The only thing which it is difficult to understand is that an institution which offers such great

financial advantages should need to take such pains to secure students. Late in September, 1919, an advertisement was published, offering for nothing, anatomical charts, estimated at a fairly high value. A woman, who was interested to see where the catch was, wrote a letter, asking how these might be obtained. She was informed that these charts were given when the enrolment fee was received, and she has since received from the University a succession of letters up to date, the first being in October, 1919, and the last one in January, 1922. After the first one or two, the letters are addressed "Dear Friend:," and suggest that they are form letters. They have also come with a curious regularity, and from the 1st to the 15th of the month in October, November, December, 1919; January, February, March, April, May, and November, 1920, and January, 1922. During this time she has received 10 enrolment blanks, the annual catalog of the University, a pamphlet, "The Great Profession for Women," and a large number of miscellaneous circulars.

This course apparently corresponds to the cheap medical school now driven out of existence; but as a chain is no stronger than its weakest link, the chiropractor need be no better than that pictured in the foregoing description.

Further light is, however, thrown on the subject of chiropractic education and principles, by Dr. George Dock, of St. Louis, in an admirable account²⁹ of his visit to the mother school, already referred to, which may presumably be taken as representing their highest standards. The following comment of his must be taken seriously: "It is true, in a sense, that the method of study followed, and the methods of practice, inculcated are not worth the consideration of intelligent people; yet the fact that more than 3,000 potential voters spend a number of months and several hundred dollars apiece in getting the so-called training in a single school is a matter worth the consideration, not only of physicians, but also of hygienists, economists, psychologists and jurists."

The guide explained the theory of chiropractic to Dr. Dock "by means of the narrowed feramina in the scoliotic specimens, showing how the "vital force" that should go through the nerves has difficulties. He also talked much about the "innate mind," which he was confident was wholly independent of the body."

The chief method of treatment, and the one to which a large amount of the student's time is devoted, is the "chiropractic thrust." Form is acquired by practice on "pieces of gas-pipe with a cap on top and a fairly strong spring inside. . . . The 'thrust' is a quick spontane-

ous push with the heel of the hand upon the bony process of misaligned vertebrae."

Dr. Dock describes the method of treatment as follows: "The patient lying down, a rapid palpation is sometimes made, very often, in fact, none at all, as the site to be treated is already known; then the left hand is arranged for the thrust, the other hand fastened around the wrist, and a rapid push downward is made, the whole thing taking much less time than it takes to describe. A girl student sitting next to me, who said she had often been adjusted, said the palpation and thrust had no particular local effect, such as tickling. Those who imagine that the treatment is used only for local diseases should bear the recommendation of the effects in general malaise, as from being up too late at night; the value of the treatment for workmen, and its use in blindness, deafness, cancer of the stomach and liver, smallpox, measles, influenza, etc." So much for the educational side.

Leslie's Weekly states that, from their own figures, chiropractic practitioners number 10,000 in the United States, with nearly 1,000,000 patients, who contribute to their coffers between \$50,000,000 and \$60,000,000 annually;⁴⁰ and a prominent doctor of chiropractic recently stated that there was a demand for 100,000 chiropractors in this country today.⁴¹

Leslie's Weekly speaks of a chiropractor, who was formerly a carpenter and who, last year, made \$8,000 in his business.⁴² Another chiropractor,⁴³ in Illinois, was 32 years old when he took "the science" up. Lack of education, amongst other things, had held him back. He had to borrow about \$400 to get through school. In addition to relieving a great deal of suffering, which must have been a remarkable satisfaction to him, he has saved money. He has three automobiles, not Fords, owns real estate to the value of \$7,000 to \$8,000, and pays income taxes.

Another gentleman, no longer young, but 72 years old, this year, is apparently finding his practice interesting, and it runs from \$700 to over \$1,000 a month.

Leslie's Weekly quotes a keen observer of chiropractic as follows: "This is certainly wonderful business, this chiropractic; I have seen enough. I am going to take a course and practice. I can do it on the side in addition to my restaurant business."

"Acres of diamonds and pelions of gold are promised to the sober and industrious young chiropractor in a pamphlet issued by the New York College of Chiropractic. . . . And the beauty of it is," continues the pamphlet, "that here it is assured without the hardships and the strain of mining towns."⁴⁴

Moreover, to judge from the testimonials,

chiropractic seems particularly suited as a profession for old and broken down men, and for those unable to get anything else to do.

Chiropractors claim that they are licensed to practise in 22 states. The Universal Chiropractors' Association guarantees the graduate "the legal right to practise; or we will, thru orness of the law, know the reason why. . . . The fact that chiropractors are practising in every state in the Union, and that the U. C. A. has not failed to protect them speaks for itself."⁴⁵

In Massachusetts they have no standing whatever. The escape for the chiropractic in this state is to register as a masseur, but to pose as a chiropractor. If he is caught, he has only to claim that he is practising massage. It seems not unlikely that a definite attempt will be made in this state to establish a licensing board for chiropractic.

5. *The Amateur Quack*.—The last and fifth division of the irregular practitioner has not been, up to this time, sufficiently appreciated. The amateur quacks out-number all the others put together. They are active in every community. They are actuated by altruistic motives and they do only a moderate amount of harm. The prevalence of these amateurs in medical matters is not new.

"It is related that Alfonso D'Este, Duke of Ferrara, one day in conversation wondered what trade or profession was most common. His fool, Gonelle, at once said that the art of medicine had the largest number of professors, and wagered that he would prove his assertion within twenty-four hours. The next morning, Gonelle came out of his dwelling, his head swathed in wrappings, his hat crushed down upon his head, and his shoulders huddled up under his cloak. The first man he met asked him what was the matter. He answered: "I have a frightful toothache." "Ah, my friend," said the other, "I know the best cure for that," and told him of it. Gonelle wrote his name on his tablet, pretending also to make a note of the recipe. The whole length of the street he met no one who did not tell him some cure or other, all different from the rest, but declared to have been thoroughly tried and to be infallible in its operation. On reaching the courtyard of the palace he found himself surrounded by people who were also eager in offering advice. Their names also went down on his tablets. When he entered the Duke's chamber His Excellency at once called out, "What is the matter, Gonelle?" The fool answered that he had a toothache; whereupon the Duke said, "I know something that will stop the pain at once, even if the tooth is decayed. Messer Antonio Mussa Brassavola, my physician, has never ordered anything better. Do this, and that, and at once you will be cured."

Gonelle then threw off his wrappings and exclaimed, "You, too, my lord, are a doctor. I have already on my way hither, although I had to pass along only one street, found more than two hundred others. Here is the list. I am ready to bet that I should find more than ten thousand if I went all about the town. Can you find more people practising any profession?"⁷⁴⁶

If any one of you will do your knee up in a ham splint and bandage, and take a pair of crutches and go three or four miles in the trolley cars, you will find out two things:

(1) The desire of everybody to be considered and to make room for the invalid to sit down.

(2) The curiosity, unconcealed, but outspoken, of many of your fellow passengers as to the cause, history, and progress of the ailment. People who have never heard of Mr. Howells' well-known man, in Chicago, who made his fortune by minding his own business, are eager to offer advice. You may give them whatever diagnosis you like, varying from a sprained knee to sarcoma, or fractured patella, and you will find that they have either had it themselves, or had a relative or friend who had it, and the treatment by which he was cured was something entirely different from yours, unless the result was fatal, in which case you will be informed of that. The number of remedies proposed is legion and it is surprising to find that more people are not unsettled by this sort of thing.

This form of irregularity requires no legislation. It has always existed and it always will, for this tendency represents an inherent quality in human nature; the desire to give advice.

Conclusion.—We are, it seems to me, too prone to regard the irregular practice of our own day and in our own community as a particular misfortune and an unprecedented folly on the part of the public. For that reason I have tried to show that irregular practice has always been and probably always will be with us in varying form, but that in general it follows well-defined channels, inasmuch as it rests on an inherent tendency in the human race to believe in the wonderful, the mystical, the obscure, the new, the unusual and the irregular. There are hundreds of men all over the country, waiting to buy gold bricks or to entrust a roll of bills to a stranger while he goes to the bank for more.

Today Christian Science and manipulative methods hold the centre of the stage; if they were wiped out, some other form of irregular healing would take their place. Christian Science developed under a wonderful woman, who understood advertising and business matters in a very practical way; but she is dead and her successors are quarreling.

Osteopathy is in reality bone-setting with a pseudo-scientific explanation superimposed, but chiropractic seems merely a cheap commercial enterprise, modelled on osteopathy—too successful, growing too fast, and too self-confident to endure permanently, although at present it is a real menace to the health of the community.

The present situation should not be taken too seriously in view of the history of the past, nor too lightly in view of the public health of the future. Our attitude as a profession has been to shut our eyes to these cults, to denounce them in general terms, and to restrict them as much as possible. But that is not the way that nostrums were so effectively restricted in the campaign a few years ago. There, instead of condemning them in general terms as had been done previously, the terms were specific; each nostrum was analyzed and the analysis given full publicity. It was shown that alcohol, morphia and cocaine were being distributed under false pretences, and so general was the publicity that legislation of an effectual character was compelled.

Miracle healing and mental healing, when associated in any way with religious belief, cannot be argued about, and may only be restricted to the extent of preserving the health of the community and safeguarding so far as possible the avoidable deaths of innocent persons at the hands of religious fanatics.

With regard to manipulative methods, we should, it seems to me, adopt a definite course of action toward the present condition, already begun by the *Journal of the American Medical Association*, and instead of excluding the literature of irregular cults from our libraries, we should, I believe, give it the widest publicity and encourage students and practitioners to familiarize themselves with it. Nothing can be more detrimental to absurd claims than a free and general knowledge of their literature. Those in doubt about chiropractic need only to read the testimony of Palmer before the Wisconsin courts to realize how slender is the scaffolding on which chiropractic rests, a "science" which has a school of 2000 to 3000 students.

Secondly, we should, I believe, teach our medical students the principles of physical therapeutics, and show them why manipulative methods are at times beneficial. In order to do this we should investigate these manipulative methods ourselves. The average practitioner of today condemns and deplores these manipulative cults, but without sufficient knowledge of what they really are to make his condemnation effective. This method has proved unsuccessful and unsatisfactory in restraining them. Let us, therefore, attempt to inform the practitioner, the student and the public as to the bases as well as the claims and pretences

of these cults, and finally let us return, in closing, to the comforting statement that you can't fool all the people all the time.

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GUMMATOUS CERVICAL ADENITIS.*

By WM. PEARCE COUES, M.D., BOSTON.

GUMMATOUS cervical adenitis is one of the most uncommon manifestations of syphilis, as are all gummatous infiltrations of the superficial lymph glands. According to Fasal¹ the credit of the first description of gummatous lymph glands belongs to Potier² of France, who wrote on the subject in 1842. Salnave,³ Sarrhos,⁴ and Cahen,⁵ followed with articles in the fifties, and a number of papers had been written on the subject of this rare manifestation when Fasal's classic article appeared in the German *Archives for Dermatology and Syphilis* for 1910. This, and the article by Wile,⁶ in the same *Archives*, published in 1912, give the best account of the condition in the present literature. Fasal's article deals with gummatous lymphoma in general, while Wile's paper is on gummata of the superficial lymph glands.

American literature recorded two articles on the subject up to 1912, and most of the very recent textbooks, devoted entirely to syphilis,

either give very brief mention of the condition or do not speak of it at all.

Wile estimated that at the time of his article, the number of reported cases of gummata of the superficial lymph glands was well under one hundred.

The condition is of interest to the surgeon as well as the syphilologist. In hospital practice, the cases are apt to find their way into the surgical out-patient department, rather than into the dermatological or syphilis department. The cases are apt to be confused with tuberculous of the cervical lymph glands, with Hodgkin's disease, and with lymphosarcoma. All those who have studied the subject agree as to the extreme difficulty of making a diagnosis by microscopic examination. This is especially so in regard to tuberculous. McLeod⁷ says: "The differentiation by the microscope between the granulomata of syphilis and tuberculous is always difficult and sometimes impossible; for example, in syphilitic gummata, where a histological architecture may be present which resembles that of a lupus nodule in every detail with the exception of the presence of tubercle bacilli."

The histological side of the subject, Fasal tells us, has been studied by Cornil, in 1878, who wrote of the different histological appearances in the glands affected in tertiary syphilis and in primary and secondary syphilis. He found a general hyperplasia of the gland substance and a hyperplasia of the endothelial cells. Lustgarten⁸ has given the most perfect clinical description of this condition that has been written. He described the clinical appearance of the glands as the seat of gummatous inflammation. He found that the inguinal glands are the most commonly affected, and next, the cervical glands. They vary in size from a cherry to an orange, the general rule being that they are walnut size. There is seldom pain associated with the swellings. The skin over the glands may become adherent, reddened, and, finally, the gland may rupture by a tiny opening, which enlarges, and in time a typical gummatous ulcer develops.

Ramagge⁹ wrote on the subject of gummatous adenitis in his Paris Thesis in 1880. His conclusions were as follows: Gummatous degeneration of lymphatic glands is a rare manifestation of tertiary syphilis. It most often appears one year after the primary infection. It occurs in conjunction with other tertiary manifestations, or may occur as an isolated phenomenon. As a rule, only a few glands are affected, seldom more than three. He places the incidence of the swellings in the same order as Lustgarten: first, inguinal, then sub-maxillary, and then other cervical glands. The diagnosis is often made with the greatest difficulty. The tumors must be differentiated from gummata of the skin and of the adjacent muscles, as well

*Read at a meeting of the Out Patient Staff of the Massachusetts General Hospital, March 29, 1922.

as from the satellite gland of a primary lesion. Also, there is difficulty in differentiating the glands from those affected by malignant disease. He believes the prognosis as to complete cure of the lesion good. The treatment must be both local and general.

From a study of the literature of the subject, it would seem that a number of former great syphilographers had written of the condition, and it was their conclusion that this was a rare but perfectly definite manifestation of syphilis, which clinically responded to the therapeutic test in a manner as to leave no doubt as to the diagnosis.

Virchow¹¹ mentions an early leucocytosis, and later a progressive anaemia, during the course of the trouble. He distinguished three stages in the inflammatory condition of the glands. First, the stage of simple irritation, during which the intercellular substance maintains a gelatinous consistency; second, a medullary stage, during which there is active cell proliferation, puriform softening of the tumor mass, and softening of the intercellular substance; third, the stage of caseation, in which active cell proliferation becomes less marked, but in which the main cell types are connective tissue and granulation cells.

Fasal examined gland fragments from his cases, and in one there was the picture of endarteritis obliterans, which he regarded as very suggestive as to the character of the process. Löwenbach¹² thought that at times the histologic picture could not be differentiated from that of some forms of sarcoma.

At the present time, doubt has been expressed by pathologists and clinicians as to the true location of these swellings, the thought being that they are perhaps in muscles near or around glands, or gummatous swellings over the glands, fascia, or skin. The absence of the treponema from most tertiary lesions leaves microscopic proof of the cause of the swellings wanting also. It is necessary to judge the matter broadly, and all that can be said is that the neck masses look like enlarged glands, feel like them, and have totally disappeared under specific treatment. In this connection it is fitting to remember the great controversy between Fournier and Charcot concerning the etiology of tabes, Fournier proving on purely clinical grounds, from his vast experience with thousands of syphilitics, that where there was no syphilis, there was no tabes,—a fact that was the triumph of pure clinical deduction, from a master of the subject.

The following case is the fifth I have recorded, which clinically came under this head, the other being recorded in the *Boston Medical and Surgical Journal* for November 8, 1915.¹³

E. L. F., male, 33. Married, with two chil-

dren. Was seen in the Surgical Out-Patient Department of the Massachusetts General Hospital on February 1, 1922. There was a history of a penile lesion five years previously, but the patient gave no history of having noticed any secondary symptoms. Has been well and at work. Three months ago he noticed swelling under the jaw, and then on the right side of the neck, behind the ear. The swellings gradually increased in size and the one on the right side became somewhat reddened; no pain or discomfort, however, was noticed.

Examination showed a well-developed and nourished man. The pupils were slightly oval and stiff, reacting to light and distance, however. Station was good and the knee-jerks were present. The tongue was rough, and near geographical. Mouth clean; no leukoplakia noted.

On the left side of the neck, in the submaxillary region, was a firm, non-tender mass, the size of a lemon, clinically having the appearance of a considerably enlarged lymph gland. The mass was not fixed or tender to palpation, the skin was not reddened or adherent over it.

On the right side of the neck was a mass, posterior to the upper third of the sternocleidomastoid. This was somewhat reddened, not boggy, not tender and not adherent. There was no glandular enlargement noted elsewhere. The Wassermann reaction was strongly positive. A blood smear was negative for leukemia.

The patient was transferred to the South Medical Department of the Hospital. In one week's time there was considerable improvement in the swelling of the neck. The case was regarded as probably one of gummatous cervical adenitis, with a realization that the reaction to later treatment would perhaps be the criterion as to the probable correctness of the diagnosis.

In those cases of this condition which I have seen, with few exceptions the patients have been well-nourished, the masses have been painless, and clinical signs of tuberculosis have been conspicuous by their absence; but in certain cases it is possible there is a relation between the two conditions.

Wile's⁶ case is of much interest, inasmuch as the treponema were recovered from the gland and demonstrated by the dark field. The patient, a young man 19 years of age, had received his primary infection (penile) some five months before. While receiving large doses of mercury at this time, the glands on the left side of the neck began to swell rapidly. The record stated that a "left supra-clavicular gland was enlarged to the size of a plum; it was readily movable under the skin, which was somewhat reddened over it. The gland was somewhat fluctuant. A somewhat smaller tumor, involving the lowest of the posterior cervical chain, was seen behind the sterno-mastoid muscle. The skin was reddened and the gland fluct-

tuated. The uppermost gland of the posterior cervical chain and that over the mastoid process were both enlarged to the size of an olive, firm, elastic, and not fluctuating, and the skin covering them showed no change. On November 11, 1911, the largest of these four tumors, the supraclavicular, was punctured with a fine hypodermic needle and a few drops of sero-purulent fluid were aspirated with a syringe. With the aid of the dark field illumination, a few typical spirochetes were found. On the 17th of November both of the larger, fluctuating glands ruptured through pin-point openings, which rapidly enlarged until they took on the appearance of typical punched-out gummatous ulcers of the skin from which a thin sero-purulent exudate was discharged. Rapid healing took place under salvarsan, though it was not complete at time of writing, one month after treatment."

It would seem that in this case the diagnosis was certain, but the hypercritical will no doubt say that the supposed glands were in reality not cervical lymph nodes. The distinction, however, of the actual tissue invaded is rather of academic than of practical interest, the fact of importance being that these masses in the neck, due to syphilis, are not infrequently unrecognized as such, with resulting misfortune to the patient and chagrin to the physician.

Where there are also undoubted signs of syphilis, and a positive Wassermann reaction, the nature of the enlargements in the neck region is sometimes suspected, but with negative blood, and no signs, and often no history of syphilis, the condition is most baffling, and judgment must be by the therapeutic test, the application of which will often richly repay the physician.

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MEMBERSHIP CHANGES IN THE MASSACHUSETTS MEDICAL SOCIETY FOR THE MONTH OF JUNE, 1922.

OFFICIAL LIST (5TH).

Compiled by the Secretary of the Society.

ALPHABETICAL LIST.

Adler, Herman M., Chicago, Ill., now 721 South Wood St.
 Allan, Arthur Willburn, transferred by Council from Norfolk to Suffolk.

Armstrong, Donald Budd. Resignation accepted by Council.
 Barach, Alvan Leroy. Resignation accepted by Council.
 Bell, James Francis, Jr. Resignation accepted by Council.
 1909 } Blanchard, William Herbert, Boston, 1069
 1922 } Boylston St.
 Restored by the Council, June 13, 1922.
 Borden, George E., from Adamsville, R. I. (non-resident), to Fall River, 132 Franklin St. (Bristol South).
 Butler, David Mathew. Resignation accepted by Council.
 Cameron, Isabella L., Minneapolis, Minn., Woman's Maternity Hospital.
 Cleaves, Helen Taft, from Palmer to Pacific Grove, Calif., 149 8th St.
 Constans, Frank Elmore, died at Brockton, May 29, 1922, aged 55.
 Crawford, Francis Xavier. Transferred by Council from Middlesex South to Suffolk.
 Dearborn, George Van Ness. Resignation accepted by Council.
 De Lue, Frederick S. Office now Boston, 84 Commonwealth Ave.
 Dolan, William Francis, from Brookline (Norfolk), to Brighton (Middlesex South). Office, Boston, 430 Marlboro St.
 Eaton, Henry Douglas. Resignation accepted by Council.
 Elliott, Russell D., Boston, now 9 Dwight St.
 Finnegan, Francis A., from Worcester (Worcester), to Lowell, 491 Lawrence St. (Middlesex North).
 Flert, Penelope McN., from East Gardner to Wakefield, 76 West Chestnut St. (Middlesex East).
 French, Leland M., from Worcester to Pittsfield, South Street Apartments (Berkshire).
 Fuller, Andrew H., from Fiskeale (Worcester), to Templeton (Worcester North).
 Gervais, Harriet Marion, now Higgin, Harriet M. Gervais, Allston. Office, Boston, State House, Div. Child Guardianship.
 Gordon, Louis, Boston, now 20 Charlesgate West.
 Gurjian, Leon K., Worcester, now 204 Main St.
 Haines, Samuel F., from Boston to Rochester, Minnesota, 711 7th St., S. W.
 Hall, William Dudley, Boston. On retired list by action of Council.
 Handy, Harry Tucker, transferred by Council from Plymouth to Norfolk South.
 Hebbard, Ellery Cola, Boston. On retired list by action of Council.
 Heffernan, David A., Boston, now 270 Commonwealth Ave.
 Hodgdon, Frank Wellington, Jr. Resignation accepted by Council.
 Janjigian, Robert Rupen. Resignation accepted by Council.
 Jelalian, Hairabed S. Resignation accepted by Council.
 Jenkins, Charles Edwin, Boston. On retired list by action of Council.
 Jones, Chester Morse, transferred by Council from Middlesex South to Suffolk.
 Keown, James Archibald. Resignation accepted by Council.
 Kinne, George Lyman. Resignation accepted by Council.
 Lancey, Clifford S., from Charlton (Worcester), to Gardner, Gardner Trust Bldg. (Worcester North).
 McLaughlin, Arthur Otis, died at Haverhill, June 18, 1922, aged 42.
 Marnoy, Samuel L., Chelsea, now 254 Washington Ave.
 Meaker, Samuel Raynor, transferred by Council from Norfolk to Suffolk.
 Moir, Marguerite Winifred, transferred by Council from Norfolk to Suffolk.

Nichols, Edward Hall, died at his home in Boston, June 12, 1922, aged 58.
 Norton, Eben Carver, Norwood, now 38 Cottage St. Parris, Roland Oliver, transferred by Council from Middlesex South to Suffolk.
 Pettigill, Warren Martin, from West Somerville (Middlesex South), to Lawrence, U. S. Veterans' Bureau, 21 Hampshire St. (Essex North).
 Pratt, Calvin, died at Bridgewater, June 17, 1922, aged 80.
 Sachs, Benjamin, from Beverly (Essex South), to Norwood (Norfolk), 893 Washington St.
 Siragusa, James Joseph, transferred by Council from Norfolk to Suffolk.
 Stephenson, Franklin Bache, from Claremont, Calif., to Washington, D. C., Wardsman Park Hotel.
 Stetson, Frank Elliot, from Nonquitt to South Dartmouth.
 Van Doursen, George L. Lowell, now 226 Central St.
 Webster, Samuel G., from West Roxbury (Norfolk), to Newtonville (Middlesex South), 15 Rossmore St.
 Weyher, Russell F., from Boston to Detroit, Mich., 1229 David Whitney Bldg.
 Wood Nelson Merwin, transferred by Council from Norfolk to Suffolk.

ADDRESSES UNKNOWN.

Azadian, David George. (Not in Fresno, Calif.)
 Lawlor, John Charles.
 McClintock, Elsie.

Changes of address should be sent to the Secretary, Dr. Walter L. Burroughs, 42 Elliot Street, Jamaica Plain, 30.

NEW FELLOWS ADMITTED FOLLOWING THE EXAMINATIONS OF MAY 4, 1922, WITH THEIR ADDRESSES.

Albert, Lionel Louis,.....Central Falls, R. I.
 62 Pacific St.

Bacon, GorhamBarnstable.
 Address, Yarmouthport.
 Barstow, Carl Elijah,.....Everett, 519 Broadway.
 Bassett, Alice Haley,.....Boston,
 510 Commonwealth Ave.

Berkowitz, ArthurRoxbury, 2 Hutchings St.
 Biddle, Stephen Mulford, Cambridge,
 330 Mt. Auburn St.

Blackett, Charles Wesley, West Newton, Office, Boston, 35 Bay State Rd.
 Bliss, William Everett, Medford, 168 Forest St.
 Bogusz-Wiazlo, Ladislaws, Cambridge, Office, Boston, 220 Hanover St.

Boland, Benedict Fenwick, Boston,
 Boston City Hospital.

Braverman, Aaron Henry, Lowell,
 105 Chelmsford St.

Buckman, Thomas Ellwood Boston,
 Boston City Hospital.

Bunce, James Walter, North Adams, 332 Main St.

Campbell, Kleber Alexander, Hopedale.
 Collins, James Brooks, Springfield, 4 Chestnut St.
 Corriden, Thomas Francis Northampton,
 16 Center St.

Clegg, Herbert Alexander, Lawrence, 477 Essex St.

De Cicco, Luigi Marius, Fitchburg, 361 Water St.
 Downey, Hugh James, Pittsfield, 184 North St.
 Dwyer, Philip Roche, Salem, 354 Essex St.

Edwards, Martin Russ., Wayland, State Rd., East.

Favaloro, JohnLowell, St. John's Hospital.
 Finistow, MarjorieBoston, Boston City Hosp.

Galleani, IliiaBoston, 196 Hanover St.
 Garoyan, GaspardBoston, 417 Mass. Ave.

Glickman, Hélène Sarah, Springfield.
 476 Chestnut St.
 Gordon, George Korolick, Malden, 458 Main St.

Haley, Paul James Dodge Medford, 49 High St.
 Hamilton, Wallace Field, Newton, Newton Hospital.
 Hannaford, CharlesPortsmouth, N. H.

Harrington, Winthrop Worcester,
 39 Pleasant St.

Hawley, Ralph Ernest Lynn, "The Breakers,"
 Dudley Lynn Shore Drive.

Healy, Harrison Thomas, New Bedford,
 1174 Pleasant St.

Jordan, Sara Murray, Brookline, 5 Babcock St.

Kamberg, SamuelBoston, 687 Boylston St.
 Klein, Alvin Walter, Stockbridge, Ice Road.
 Knowlton, James Edward, Quincy, 579 Hancock St.
 Krans, Dorris May Presson Framingham, P.O. Box 99.

Laierson, JosephRoxbury, 37 Munroe St.
 Littlehale, Roy Frederic, Hanson,
 Plymouth County Hosp.

Marble, Howard Bennett, Shelburne Falls,
 63 Bridge St.

McCormick, William New Bedford,
 28 Parker St.

McDonald, Harry Leo, Malden, 221 Highland Ave.

McSweeney, Joseph Henry Somerville, 22 Bow St.

Monette, Camille Joseph, Taunton, 453 Bay St.

Moses, Alvin Raymond, Worcester,
 Worcester City Hospital.

Nichols, Alvord Gates, Worcester,
 Worcester City Hospital.

Nichols, Andrew, 3d, Hathorne (Danvers),
 322 Newbury St.

O'Brien, Thomas Francis, Worcester,
 Worcester City Hospital.

Paul, Frederick Henry, Jr., Newton, Newton Hospital.

Peterson, Carl Adrian, Worcester,
 Worcester City Hospital.

Rice, Kenneth Harrison, Worcester,
 Worcester City Hospital.

Root, Howard Frank, Roxbury, 11 Tellow St.

Royal, Kent Tyler, North Brookfield.

Sharp, Benjamin Samuel, Boston, Boston City Hosp.

Shay, Edward Francis, Boston,
 270 Commonwealth Ave.

Shubert, JuliusBoston, 29 McLean St.

Sterns, Albert Henry, New Bedford,
 1149 Acushnet Ave.

Tartakoff, SamuelTaunton,
 Taunton State Hosp.

Tashian, Hovnan Nazaret, Cambridge, Office, Boston,
 636 Tremont St.

Taylor, Jay Richard, Fairhaven, 348 Main St.

Thomas, Abraham Fifield, Newburyport, 1 Orange St.

Thompson, John James, Taunton,
 1910 Toppan, Albert Brookings, Watertown.

1922 Restored by Censors, 293 Mt. Auburn St.

Webber, Isaac Mervyn, Worcester,
 Worcester City Hosp.

Wight, Freeman Clark, Boston, 192 Dartmouth St.

Williams, Hubert Joseph, Boston, 130 Newbury St.

Wolfson, Louis Elijah, Boston, 520 Beacon St.

Worcester, George Haverhill, 26 Summer St.

Zelig, DavidBoston, Boston City Hosp.

The Massachusetts Medical Society.

PROCEEDINGS OF THE SOCIETY.

First Day, June 13, 1922.

CLINICS were held at the principal hospitals of Boston during the morning, according to a revised program published in the *Boston Medical and Surgical Journal*, the official organ of the Society, in its issue of June 8, 1922. The Sections of Surgery and Pediatrics held their meetings at 10 A.M. in buildings C and B, respectively, at the Harvard Medical School on Longwood avenue, Boston. At 11.30 A.M. the Supervisors held their annual meeting in Building A amphitheatre, at the school, ten Supervisors being present and the usual business transacted. At noon the Council met in the same room, one hundred and fifteen signing the two attendance books. (See Proceedings of the Council.) During the afternoon the Sections of Medicine, Tuberculosis, and Hospital Administration held their meetings at the school in Buildings C, B, and E, respectively.

The attendance and the officers elected for the next year were as follows:

SURGERY: Attendance, 150. Officers for 1923:

CHAIRMAN, J. B. Thomas, Pittsfield.

SECRETARY, G. A. Leland, Jr., Boston.

PEDIATRICS: Attendance, 90. Officers for 1923:

CHAIRMAN, A. C. Eastman, Springfield.

SECRETARY, J. H. Young, Jr., Newton.

MEDICINE: Attendance, 150. Officers for 1923:

CHAIRMAN, B. W. Paddock, Pittsfield.

SECRETARY, F. M. Rackemann, Boston.

TUBERCULOSIS: Attendance, 200. Officers for 1923:

CHAIRMAN, E. O. Otis, Boston.

SECRETARY, S. H. Remick, Reading.

HOSPITAL ADMINISTRATION: Attendance, 48. Officers for 1923:

CHAIRMAN, J. J. Dowling, Boston.

SECRETARY, E. W. Wilson, Boston.

NEW SECTION OF OBSTETRICS AND GYNECOLOGY:

CHAIRMAN, C. E. Mongan, Somerville.

SECRETARY,

In the evening the Shattuck Lecture was delivered in John Ware Hall, Boston Medical Library, by Dr. Elliott P. Joslin of Boston. Subject: "The Treatment of Diabetes Mellitus." Attendance, 300.

Second Day, June 14, 1922.

The second day of the annual meeting was begun by demonstrations and papers in the departments of physiology and pharmacology at the Harvard Medical School, as set forth in the program in the June 8 number of the *Boston Medical and Surgical Journal* and earlier in the official program, sent to all the fellows of the Society, the attendance at both being about 250. At 11.30 o'clock the Society gathered in the amphitheatre of Building C for the exercises of the one hundred and forty-first anniversary, 185 fellows and guests being present. The President, Dr. John W. Bartol of Boston,

called the meeting to order; the Secretary read the minutes of the last meeting and they were approved. The Secretary read the following statement of the membership for the year closing on that day: Deaths, 37; resignations, 41; deprived of the privileges of fellowship, 12, making a total loss of 90. There had been restored to fellowship by the Council, 7; readmitted by the censors, 5, and new fellows, 171, making a total gain of 183 and a net gain of 93. Adding this to the total membership on June 1, 1921, 3933, the total membership on June 14, 1922, was 4026.

The following proposed amendment to Chapter IV, Section 3, of the By-Laws which had been approved by the Council, February 2, 1921, and had been referred to this meeting by the Society on June 1, 1921, was read by the Chair, who also explained its purport:

That Chapter IV, Section 3, of the By-Laws be so amended that the last sentence of paragraph one shall read: "Councilors only, shall be eligible to the offices above named," *viz.*, president, vice-president, secretary, treasurer and librarian, thus conforming the By-Laws to the Statutes, 1803, Chapter 85, Section 3, Digest, Article V, paragraph 3, which provides that the Councilors shall "appoint, from among themselves, a president, and such other officers of the said corporation as are to be so appointed."

Dr. F. B. Lund moved to adopt the amendment. The motion was seconded and so voted, there being no votes in the negative.

The President read an extract from the Proceedings of the Council of February 2, 1921, in which the Chairman of the Committee on Membership and Finance called attention to the terms of Chapter 15, Section 9, of the Statutes of 1781, now Article X of the Digest, whereby the amount of money the Society may receive from real and personal estate is limited to eight hundred pounds, the pound "to be valued in silver at six shillings and eight pence per ounce." He thought that such a sum was manifestly unsuited to the present requirements of the Society. He moved and it was voted by the Council to refer the matter to the Committee on State and National Legislation. That committee had reported to the Council yesterday, with the result that the following vote had been passed by that body:

Voted, That the Society be requested to appoint at the annual meeting a committee who shall petition the next General Court to enact an amendment of Chapter 15, Section 9, of the Statutes of 1781 so that said statute shall conform to the provisions of Chapter 180, Section 9, of the General Laws of Massachusetts, 1921, relating to charitable corporations, as regards the amount of property the Society may hold; the intention of this motion being that the proposed amendment shall be submitted for approval to the Council at its October meeting.

The Chair stated that a matter of this importance ought to have action by the Society and

that the Council should be asked its approval of any amendment that might be prepared by a committee to be appointed. He asked the Secretary to read Article X of the Digest and the following Section 9, of Chapter 180, of the General Laws of Massachusetts, 1921, having to do with corporations for charitable and certain other purposes:

"Section 9. Any corporation organized under general or special laws for any of the purposes mentioned in this chapter may hold real and personal estate to an amount not exceeding two million dollars, which shall be devoted to the purpose set forth in its charter or agreement of association, and it may receive and hold, in trust or otherwise, funds received by gift or bequest to be devoted by it to such purpose. This section shall not limit the amount of property which may be held by a corporation under the authority of any special law."

Dr. H. T. Hutchins made the following motion:

Moved, that a committee be appointed, consisting of the President and Secretary, who in conference with legal counsel shall prepare a petition to the next General Court for the enactment of an amendment to Chapter 15, Section 9, of the Statutes of 1781, to bring said section into conformity with Chapter 180, Section 9, of the General Laws of Massachusetts, 1921, relating to charitable corporations, such proposed amendment to be submitted to the Council at the October meeting for approval.

The motion, having been seconded, was passed by a unanimous vote.

Dr. F. B. Lund spoke of the proposed Gorgas Memorial Institute of Tropical and Preventive Medicine at Panama. After referring to the life, character and achievements of General Gorgas, he bespoke the interest of the medical profession in this international and humanitarian undertaking. He was followed by Dr. R. P. Strong on the same subject.

Dr. Albert Evans moved and it was *Voted*, That a committee of five be appointed by the Chair from the Fellows of the Massachusetts Medical Society to coöperate with the officers of the Gorgas Memorial Institute of Tropical and Preventive Medicine in helping raise the Gorgas Memorial Endowment Fund.

At 12.34 P. M., Dr. Kendall Emerson of Worcester delivered the annual discourse with the subject: "The International Mind in Medicine." On motion by Dr. H. O. Marey, the thanks and appreciation of the Society were voted Dr. Emerson for his oration.

During the afternoon demonstrations were given in the departments of chemistry and hygiene at the school, with a good attendance, and in the evening the annual dinner was served in the ballroom of the Copley-Plaza Hotel to 530 fellows and their guests. The speakers were His Excellency Channing H. Cox, Governor of the Commonwealth; Hon. Thomas C.

O'Brien, District Attorney for Suffolk County; Hon. Benjamin Loring Young, Speaker of the Massachusetts House of Representatives, and Samuel Williston, Dane Professor of Law in Harvard University. The President spoke of the lack of a clergyman, the Rev. W. L. Sperry being detained by illness, and to supply this lack he brought the exercises to a close with an address in which religion was adapted to present medical problems, taking as a text, Hebrews 4, 14, "Let us hold fast our profession." A detailed account of the speeches may be found in the BOSTON MEDICAL AND SURGICAL JOURNAL for June 22, 1922, pages 862-864.

Adjourned at 10.30 P. M.

WALTER L. BURRAGE,
Secretary.

ADMISSIONS REPORTED FROM JUNE 1, 1921, TO JUNE 14, 1922.

Year of Admission.	Name.	Residence.	Medical College.
1921	Adams, Frank Donnette,	Boston.....	11
1922	Albert, Lionel Louis,	Central Falls, R. I.....	32
1922	Bacon, Gorham,	Barnstable.....	10
1922	Barstow, Carl Elijah,	Everett.....	12
1922	Bassett, Alice Haley,	Boston.....	12
1921	Baxter, Raymond Harding,	Marion.....	17
1921	Benedict, Mary Kendrick,	Arlington Heights.....	6
1922	Berkowitz, Arthur,	Roxbury.....	12
1922	Biddle, Stephen Mulford,	Cambridge.....	12
1922	Blackett, Charles Wesley, Jr.,	West Newton.....	11
1921	Blackway, Charles Everett,	Fall River.....	11
1922	Bliss, William Everett,	Medford.....	2
1922	Bogusz-Wiazlo, Ladislaus,	Cambridge.....	28
1921	Boivin, Omer Emédée,	Fall River.....	32
1922	Boland, Benedict Fenwick,	Boston.....	12
1921	Bouvé, Howard Allston,	Wakefield.....	11
1921	Bowman, Edward Francis,	Boston.....	12
1921	Braff, Max Mark,	East Boston.....	12
1922	Braverman, Aaron Harry,	Lowell.....	12
1921	Brown, Alfred Whittemore,	Spencer.....	12
1921	Brown, Fairly Potter Palmer,	Boston.....	10
1922	Buckman, Thomas Ellwood,	Boston.....	11
1922	Bunce, James Walter,	North Adams.....	22
1921	Burke, Mary Alice,	Springfield.....	27
1921	Byrnes, James Edmund,	Holyoke.....	12
1921	Cameron, Isabella Logan,	Boston.....	10
1922	Campbell, Kleber Alexander,	Hopedale.....	1
1921	Clare, Wendell Phillips,	Boston.....	12
1921	Clarke, Philip Henry,	Holyoke.....	17
1921	Clay, Charles Lancaster,	Lawrence.....	12
1921	Coates, Edward Augustus, Jr.,	Winthrop.....	17
1921	Cogan, Edith Ives,	Wakefield.....	27
1922	Comins, James Brooks,	Springfield.....	21
1921	Connell, Thomas Michael,	Walpole.....	14
1922	Corriden, Thomas Francis,	Northampton.....	22
1922	Clegg, Herbert Alexander,	Lawrence.....	32
1921	Crockett, Leon Wardwell,	Boston.....	10
1921	Currier, Donald Estes,	Brookline.....	12
1922	De Cicco, Luigi Marius,	Fitchburg.....	22
1921	Dehson, Clarence Henry,	Brookline.....	21
1921	Deherty, Gerald Leo,	Boston.....	11
1922	Downey, Hugh James,	Pittsfield.....	8
1921	Durgin, Lawrence Newton,	North Amherst.....	20
1922	Dwyer, Philip Roche,	Salem.....	11
1922	Edwards, Martin Russ,	Weyland.....	11
1921	Emery, Robert Lovett,	Winchester.....	10
1922	Favaloro, John, Lowell,	12
1921	Fielding, Bennett Irving,	South Boston.....	12
1921	Finkel, Henry Sumner,	Roxbury.....	11
1921	Fitchet, Seth Marshall,	Boston.....	11
1921	Foley, Joseph Daniel,	Springfield.....	32
1921	Fremont-Smith, Frank, Jr.,	Boston.....	11
1922	Fulstow, Marjorie,	Boston.....	12

Year of Admission.	Name.	Residence.	Medical College.	Year of Admission.	Name.	Residence.	Medical College.
1922	Galleani, Ilia.	Boston.	12	1922	Rice, Kenneth Harrison.	Worcester.	22
1922	Garoyan, Gaspard.	Boston.	29	1921	Robbins, Herman.	Roxbury.	12
1921	Gibson, David Howard.	South Boston.	12	1921	Rooney, John Francis.	Worcester.	4
1921	Gillon, Charles Joseph Carroll.	Taunton.	11	1922	Root, Howard Frank.	Roxbury.	11
1921	Glickman, Alfred Myron.	South Boston.	12	1922	Royal, Kent Tyler.	North Brookfield.	11
1922	Glickman, Helene Sarah.	Springfield.	12	1921	Sachs, Benjamin.	Beverly.	12
1922	Gordon, George Korolick.	Malden.	12	1921	Sawyer, Howard Pierce.	Fall River.	13
1921	Gordon, Louis.	Boston.	12	1921	Schall, LeRoy Allen.	Boston.	20
1921	Guibord, Alberta Sylvia Boomhower.	Boston.	10	1921	Schloss, Oscar Menderson.	Boston.	6
1921	Guimares, Abilio Santos.	Brookline.	31	1921	Segal, Joseph Nathaniel.	Boston.	12
1921	Gustin, Genevieve.	Wrentham.	27	1921	Segal, Louis.	Riverside.	12
1921	Hale, Herbert Francis.	Oxford.	5	1922	Sharp, Benjamin Samuel.	Boston.	12
1922	Haley, Paul James Dodge.	Medford.	14	1922	Shay, Edward Francis.	Boston.	12
1921	Hall, Francis Cooley.	Boston.	11	1921	Shen, Andrew Francis.	Lawrence.	4
1921	Ham, Helen Willard.	North Middleborough*.	12	1922	Shubert, Julius.	Boston.	12
1922	Hamilton, Wallace Field.	Newton.	5	1921	Shukle, Revashanker Maganlal.	Boston.	11
1922	Hannaford, Charles William.	Portsmouth, N. H.	12	1921	Silberg, Morris Abraham.	Boston.	12
1922	Harrington, Elmer Joseph.	Holyoke.	12	1921	Small, Ernest Winfield.	Belmont.	11
1922	Harrington, Winthrop Wendell.	Worcester.	11	1921	Smith, Richard Hsley.	Boston.	11
1921	Harris, Paul Leon.	Lowell.	12	1921	Spellman, Martin Henry.	Roslindale.	4
1922	Hawley, Ralph Ernest Dudley.	Lynn.	3	1921	Stearns, Charles Maxwell.	Chelsea.	12
1922	Healy, Harrison Thomas.	New Bedford.	32	1922	Sterns, Albert Henry.	New Bedford.	12
1921	Hogan, Charles Henry, Jr.	Salem.	12	1921	Stone, Moses Jacob.	Dorchester.	12
1921	Holman, Marguerite.	Cambridge.	10	1921	Story, Theodore LeRoy.	Allston.	12
1921	Holmes, Colin McLean.	Springfield.	7	1921	Sturgis, Cyrus Cressey.	Boston.	6
1921	Howe, Byron Edward.	Adams.	30	1921	Suffa, George Alson.	Boston.	21
1921	Hymen, Max Harry.	Lowell.	12	1921	Sylvester, Ira Emery.	Somerville.	33
1921	Irwin, Vincent Joseph, Jr.	Springfield.	13	1921	Sziklas, Charles.	Boston.	11
1921	Johnson, Leighton Foster.	Norwood.	10	1922	Tartakoff, Samuel.	Taunton.	12
1921	Jones, Stephen George.	Arlington.	11	1922	Tashian, Hovnan Nazaret.	Cambridge.	12
1922	Jordan, Sara Murray.	Worcester.	12	1922	Taylor, Jay Richard.	Fairhaven.	19
1922	Kamberg, Samuel.	Boston.	12	1922	Thomas, Abraham Fifield.	Newburyport.	26
1921	Kaplan, Jacob Copel.	Dorchester.	12	1922	Thompson, John James.	Taunton.	9
1921	Karcher, Edward Winslow.	Lynn.	33	1921	Thorndike, Augustus, Jr.	Boston.	11
1922	Klein, Alvin Walter.	Stockbridge.	15	1921	Thurnan, Aaron.	Dorchester.	11
1921	Knowlton, Florence Emerson Honey.	Worcester.	12	1922	Tojpan, Albert Brookings.	Watertown*.	12
1922	Knowlton, James Edward.	Quincy.	10	1921	Townsend, James Harvey.	Boston.	11
1922	Kontoff, Henry Arthur.	Dorchester.	12	1921	Vogel, George Louis.	Boston.	11
1921	Korb, Harry.	Roxbury.	12	1922	Webber, Isaac Mervyn.	Worcester.	5
1922	Kraus, Dorris Iresson.	Framingham.	27	1921	Wesselhoef, Conrad.	Boston.	11
1922	Lanserson, Joseph.	Roxbury.	12	1921	Weyher, Russell Frank.	Boston Harbor.	23
1922	Littlehale, Roy Frederic.	Hanson.	12	1921	Weymouth, Currier Clyde.	Medway.	12
1921	Lynch, Frederick James.	Boston.	11	1922	Wight, Freeman Clark.	Boston.	12
1921	Lynch, James Joseph.	Boston.	10	1922	Williams, Hubert Joseph.	Boston.	12
1921	MacCarthy, Francis Hamilton.	Boston.	10	1922	Wolfson, Louis Elijah.	Boston.	12
1921	Macdonald, William Joseph.	Boston.	25	1922	Worcester, George Franklin.	Haverhill.	10
1921	Manary, James Wescott.	Boston.	25	1921	Wright, Mary.	Newton Centre.	6
1922	Marble, Howard Bennett.	Shelburne Falls.	11	1922	Zelig, David.	Boston.	12
1921	Marchand, Eleonore Marguerite.	Boston Harbor.	12	1921	Zundell, Samuel Charles.	Boston.	12
1921	Marchand, Jean Charles.	Salem.	12				
1921	Maxwell, Charles James.	Hinsdale.	8				
1922	McCormick, William Aloysius.	New Bedford.	12				
1922	McDonald, Harry Leo.	Malden.	12				
1921	McDonald, William James.	Boston.	12				
1921	McLaughlin, Joseph Henry.	South Boston.	12				
1921	McNamara, John Ignatius.	Taunton.	12				
1922	McSweeney, Joseph Henry.	Somerville.	12				
1921	Mezer, Joseph Henry.	Boston.	12				
1922	Monette, Camille Joseph.	Taunton.	22				
1921	Morrison, William Henry.	Brookton.	8				
1922	Moses, Alvin Raymond.	Worcester.	12				
1922	Nichols, Alvord Gates.	Worcester.	11				
1922	Nichols, Andrew, 3d.	Hathorne.	11				
1921	Ober, Herbert Carroll.	Cambridge.	10				
1921	O'Brien, Francis Edward.	Haydenville.	16				
1922	O'Brien, Thomas Francis.	Worcester.	11				
1921	Odian, Missak Garabed.	Dorchester.	11				
1921	Onthouse, John Stanley.	Shelburne Falls.	24				
1921	Parker, George Leonard.	Clinton.	12				
1922	Paul, Frederick Henry, Jr.	Newton.	12				
1921	Peck, Martin William.	Boston*.	11				
1921	Perkins, George Edward.	Boston.	18				
1922	Peterson, Carl Adrian.	Worcester.	12				
1921	Ratté, Arthur Andrew.	Haverhill.	12				

*Readmitted by the Censors.

Total, 171 + 5 = 176.

KEY TO MEDICAL COLLEGES.

- 1 Albany Medical College.
- 2 University of Illinois College of Medicine.
- 3 University of Michigan Medical School.
- 4 Georgetown University School of Medicine.
- 5 Bowdoin Medical School.
- 6 Johns Hopkins University Medical Department.
- 7 College of Physicians and Surgeons of Baltimore.
- 8 Baltimore Medical College.
- 9 University of Toronto Faculty of Medicine.
- 10 Boston University School of Medicine.
- 11 Medical School of Harvard University.
- 12 Tufts College Medical School.
- 13 Yale University School of Medicine.
- 14 Dartmouth Medical School.
- 15 University of Cincinnati College of Medicine.
- 16 Fordham University School of Medicine.
- 17 Columbia University College of Physicians and Surgeons.
- 18 Georgia College of Eclectic Medicine and Surgery (Action of Com. on Med. Educa. and Med. Dips.)
- 19 University of Pennsylvania School of Medicine.
- 20 Jefferson Medical College of Philadelphia.
- 21 Hahnemann Medical College of Philadelphia.
- 22 University of Vermont College of Medicine.

23 Detroit College of Medicine and Surgery.	29 University of St. Joseph, Beirut, Syria.
24 McGill University Faculty of Medicine, Quebec.	30 University and Bellevue Hospital Medical College, New York.
25 University of Sydney, Australia.	31 Emory University School of Medicine, Georgia.
26 Chicago College of Medicine and Surgery.	32 University of Maryland School of Medicine.
(Action of Com. on Med. Educa. and Med. Dips.)	33 Middlesex College of Medicine and Surgery.
27 Woman's Medical College of Pennsylvania.	(Action of Com. on Med. Educa. and Med. Dips.)
28 Medico-Chirurgical College of Philadelphia.	

DEATHS REPORTED FROM JUNE 1, 1921, TO JUNE 14, 1922.

Admitted.	Name.	Place of Death.	Date of Death.	Age.
1903	Abbot, Florence Hale.	Boston.	Aug. 1, 1921.	53
1879	Battershall, Joseph Ward.	Attleborough.	Feb. 23, 1922.	79
1909	Berry, William Christopher.	Roxbury.	Feb. 8, 1922.	64
1888	Blake, Harrison Gray.	Woburn.	Jan. 26, 1922.	58
1909	Brearton, Edward John.	Dorchester.	Apr. 15, 1922.	44
1893	Brough, David Dand'e.	Boston.	July 31, 1921.	55
1888	Chandler, Norman Fitch.	Medford.	Mar. 6, 1922.	62
1873	Channing, Walter.	Brookline.	Nov. 23, 1921.	72
1915	Constans, Frank Elmore.	Brocton.	May 29, 1922.	55
1881	Croston, John Francis.	Haverhill.	July 30, 1921.	66
1882	Dyer, Ebenezer Alden.	Whitman.	Aug. 5, 1921.	64
1875	Fay, James Monroe.	Northampton.	July 26, 1921.	78
1894	Farrington, Leander Morton.	Manchester, N. H.	Dec. 10, 1921.	48
1893	Flynn, John Joseph.	Pittsfield.	Nov. 13, 1921.	60
1901	Forster, Robert William.	Lawrence.	Feb. 7, 1922.	46
1893	Gallivan, William Joseph.	South Boston.	July 13, 1921.	56
1875	Garland, Albert Stone.	Gloucester.	Nov. 28, 1921.	81
1868	Green, John Orne.	Boston.	Jan. 5, 1922.	80
1881	Greenwood, Sewell Elliott.	Templeton.	Feb. 5, 1922.	68
1895	Hanley, John Joseph.	Motherwell, Scotland.	July 26, 1921.	54
1905	Le Gro, Lester Burnside.	Bradford.	Aug. 18, 1921.	55
1912	Leeper, Marion Eleanor.	Springfield.	April 20, 1922.	40
1901	Marcy, Henry Orlando, Jr.	Newton.	May 29, 1922.	50
1903	McGaurin, George Daniel.	Newburyport.	June 15, 1921.	70
1890	Nichols, Edward Hall.	Boston.	June 12, 1922.	58
1907	O'Leary, Joseph Augustus.	Wakfield.	Sept. 21, 1921.	59
1876	Oviatt, George Alexander.	Waltham.	Feb. 26, 1922.	72
1898	Potts, Joseph Henry.	Holyoke.	June 16, 1921.	62
1900	Potts, Elizabeth Angela.	Boston.	Oct. 27, 1921.	53
1912	Rockwell, Lucy Wetherbee.	Worcester.	Dec. 18, 1921.	45
1897	Rowley, William.	Lanesville.	Jan. 29, 1922.	57
1860	Sprague, Francis Peleg.	Boston.	Oct. 6, 1921.	87
1871	Stedman, George.	Boston.	Aug. 16, 1921.	71
1865	Swan, Charles Walter.	Branford, Conn.	Dec. 1, 1921.	83
1880	West, Edward Graff.	Roxbury.	June 10, 1922.	67
1898	Williams, Abram Case.	Springfield.	Oct. 25, 1921.	50
1887	Williams, Henry Clarence.	Boston.	Nov. 8, 1921.	66

†Indicates Retired Fellow.

Total deaths, 37.

OFFICERS OF THE MASSACHUSETTS MEDICAL SOCIETY ELECTED JUNE 13, 1922.

President: John W. Bartol, 3 Chestnut Street, Boston.
Vice-President: Charles E. Morgan,
 21 Central Street, Somerville.
Secretary: Walter L. Burrage,
 42 Eliot Street, Jamaica Plain
Treasurer: Arthur K. Stone,
 Auburn Street, Framingham Center.
Librarian: Edwin H. Brigham,
 8 The Fenway, Boston.

STANDING COMMITTEES FOR 1922-1923.

OF ARRANGEMENTS

K. G. Percy, F. J. Callanan, Dwight O'Hara, J. C. Rock, L. S. McKittrick, W. T. S. Thorndike.

ON PUBLICATIONS AND SCIENTIFIC PAPERS

E. W. Taylor, R. B. Osgood, F. T. Lord, R. M. Green, A. C. Getchell.

ON MEMBERSHIP AND FINANCE

D. N. Blakely, A. Coolidge, Jr., Samuel Crowell, Gilman Osgood, Homer Gage.

ON ETHICS AND DISCIPLINE

Henry Jackson, T. J. Robinson, David Cheever, F. W. Anthony, W. D. Ruston.

ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS

C. F. Painter, J. F. Burnham, A. G. Howard, R. L. De Normandie, H. P. Stevens.

ON STATE AND NATIONAL LEGISLATION

J. W. Bartol, E. H. Stevens, F. E. Jones, J. S. Stone, T. J. O'Brien.

ON PUBLIC HEALTH

E. H. Bigelow, Annie L. Hamilton, E. F. Cody, Victor Safford, R. I. Lee.

PRESIDENTS OF DISTRICT MEDICAL SOCIETIES.

Vice-Presidents (*Ex-officio*).

Arranged according to seniority of fellowship in the Massachusetts Medical Society.

E. H. Bigelow.....Middlesex South
 F. W. Baldwin.....Essex South
 T. F. Carroll.....Middlesex North
 J. S. Stone.....Suffolk
 A. I. Beals.....Plymouth
 W. J. Walton.....Norfolk
 L. F. Baker.....Worcester North
 W. J. Collins.....Hampshire
 F. D. McAllister.....Essex North
 G. E. Emery.....Worcester
 H. C. Allen.....Bristol South

Summer Coolidge.....	Bristol North
M. B. Hodskins.....	Hampden
C. E. Ordway.....	Middlesex East
F. E. Jones.....	Norfolk South
G. H. Thompson.....	Berkshire
H. D. Handy.....	Barnstable

COUNCILORS 1922-1923.

ELECTED BY THE DISTRICT MEDICAL SOCIETIES AT THEIR ANNUAL MEETINGS, APRIL 15 TO MAY 15, 1922, AND THOSE WHO ARE COUNCILORS UNDER THE TERMS OF THE BY-LAWS.

NOTE.—The initials M.N.C., following the name of a councilor, indicate that he is a member of the Nominating Committee. V.P. indicates that a member is a councilor by virtue of his office as president of a district society, and so vice-president of the general society. C. indicates that he is chairman of a Standing Committee. Ex-P. indicates ex-president.

BARNSTABLE,

H. D. Handy, Harwich, V.P.
W. D. Kinney, Osterville, M.N.C.
E. S. Osborne, West Dennis.

BERKSHIRE,

G. H. Thompson, North Adams, V.P.
Henry Colt, Pittsfield.
A. P. Merrill, Pittsfield.
B. W. Paddock, Pittsfield.
P. J. Sullivan, Dalton, M.N.C.

BRISTOL NORTH,

Summer Coolidge, Middleborough, V.P.
W. H. Allen, Mansfield.
J. B. Gerould, North Attleborough.
F. A. Hubbard, Taunton, M.N.C.

BRISTOL SOUTH,

H. C. Allen, New Bedford, V.P.
A. W. Buck, Fall River.
E. F. Cody, New Bedford.
A. B. Cushman, South Dartmouth.
W. A. Dolan, Fall River.
R. W. Jackson, Fall River, M.N.C.
A. H. Mandell, New Bedford.
J. C. Pothier, New Bedford.

ESSEX NORTH,

F. D. McAllister, Lawrence, V.P.
R. V. Baketel, Methuen.
C. S. Benson, Haverhill.
J. Forrest Burnham, Lawrence.
W. W. Ferrin, Haverhill.
T. R. Healy, Newburyport, M.N.C.
A. M. Hubbell, Haverhill.
G. E. Kurth, Lawrence.
C. W. Still, Haverhill.

ESSEX SOUTH,

F. W. Baldwin, Danvers, V.P.
J. F. Donaldson, Salem.
H. K. Foster, Peabody.
Loring Grimes, Swampscott.
W. T. Hopkins, Lynn.
P. F. Johnson, Beverly, M.N.C.
J. F. Jordan, Peabody.
G. M. Kline, Beverly.
S. W. Mooring, Gloucester.
W. G. Philpen, Salem.
A. N. Sargent, Salem.
J. W. Trask, Lynn.

FRANKLIN,

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B. P. Croft, Greenfield.
G. P. Twitchell, Greenfield, M.N.C.

HAMPDEN,

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E. P. Bagg, Jr., Holyoke, M.N.C.
J. H. Celce, Holyoke.
F. C. Dexter, Springfield.
E. C. Dubois, Springfield.
A. C. Eastman, Springfield.
G. L. Gabler, Holyoke.
J. H. C. Gallagher, Chicopee Falls.
D. E. Harriman, Springfield.
G. H. Jones, Westfield.
Philip Kilroy, Springfield.
E. A. Knowlton, Holyoke.
J. J. McCabe, Holyoke.
A. G. Rice, Springfield.
J. P. Schneider, Palmer.

HAMPSHIRE,

W. J. Collins, Northampton, V.P.
A. J. Bonneville, Hatfield.
C. T. Cobb, Northampton, M.N.C.
F. E. Dow, Northampton.
A. G. Minshall, Northampton.

MIDDLESEX EAST,

C. E. Ordway, Winchester, V.P.
L. M. Crosby, Wakefield.
G. F. Dow, Reading, M.N.C.
W. H. Keleher, Woburn.
Ralph Putnam, Winchester.

MIDDLESEX NORTH,

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W. B. Jackson, Lowell.
J. H. Lambert, Lowell.
G. A. Leahy, Lowell.
J. A. Mehan, Lowell.
M. A. Tighe, Lowell.
E. J. Welch, Lowell, M.N.C.

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C. O. Chase, Watertown.
F. G. Curtis, Chestnut Hill.
J. E. Dodd, Framingham.
John Duff, Charlestown.
W. E. Fernald, Waverley.
C. B. Fuller, Waltham.
G. W. Gay, Chestnut Hill, Ex-P.
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L. S. Hapgood, Cambridge.
C. E. Hills, Natick.
L. H. Jack, West Newton.
F. R. Jouett, Cambridge.
H. J. Keaney, Everett.
S. F. McKeen, Allston.
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C. F. Painter, Newton, C.
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F. G. Smith, Somerville.
C. H. Staples, Malden.
E. H. Stevens, Cambridge, M.N.C.
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Alfred Worcester, Waltham, Ex-P.

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 C. E. Allard, Dorchester.
 W. B. Batchelder, Dorchester.
 E. H. Baxter, Hyde Park.
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 E. H. Brigham, Brookline, Lib. Emer.
 J. P. Broderick, Jamaica Plain.
 A. N. Broughton, Jamaica Plain.
 W. L. Burrage, Jamaica Plain, Secretary
 J. A. Ceconi, Dorchester.
 D. G. Eldridge, Dorchester.
 T. F. Greene, Roxbury.
 W. H. Greene, Roxbury.
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 F. C. Jillson, Jamaica Plain.
 G. W. Kaan, Brookline.
 W. B. Keeler, Roxbury.
 Bradford Kent, Dorchester.
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 M. V. Pierce, Milton.
 H. H. Powers, Brookline.
 Victor Safford, Jamaica Plain.
 G. H. Scott, Roxbury.
 C. F. Stack, Hyde Park.
 Max Sturnick, Roxbury.
 Augusta Williams, Brookline.
 G. W. Winchester, Mattapan.

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 O. H. Howe, Cohasset.
 G. H. Ryder, Quincy, M.N.C.
 G. M. Sheahan, Quincy.

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 W. C. Keith, Brockton.
 N. K. Noyes, Duxbury.
 Gilman Osgood, Rockland.
 F. J. Ripley, Brockton.
 F. G. Wheatley, North Abington, M.N.C.

SUFFOLK,

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 S. H. Ayer, Boston.
 J. W. Bartol, Boston, President.
 V. Y. Bowditch, Boston.
 Robert Bonney, East Boston.
 J. T. Bottomley, Boston.
 E. G. Brackett, Boston.
 J. E. Briggs, Boston.
 M. E. Champion, Boston.
 L. J. Cummins, Boston.
 Lincoln Davis, Boston.
 W. H. Devine, South Boston.
 G. B. Fenwick, Chelsea.
 Channing Frothingham, Jr., Boston.
 J. E. Goldthwait, Boston.
 G. S. Hill, Boston.
 W. C. Howe, Boston, M.N.C.
 J. C. Hubbard, Boston.
 H. T. Hutchins, Boston.
 Henry Jackson, Boston, C.
 D. F. Jones, Boston.
 E. A. Locke, Boston.
 F. T. Lord, Boston.
 F. B. Lund, Boston.
 Donald Macomber, Boston.
 G. B. McGrath, Boston.
 B. H. Metcalf, Winthrop.
 R. H. Miller, Boston.
 J. J. Minot, Boston.
 E. H. Place, Boston.

SUFFOLK (continued),

B. W. Pond, Boston.
 Alexander Quackenboss, Boston.
 Edward Reynolds, Boston.
 W. H. Robey, Jr., Boston.
 Stephen Rushmore, Boston.
 D. D. Scannell, Boston.
 C. L. Scudder, Boston.
 G. B. Shattuck, Boston, Ex-P.
 C. M. Smith, Boston.
 E. W. Taylor, Boston, C.
 L. P. Tingley, Boston.
 F. H. Williams, Boston.

WORCESTER,

G. E. Emery, Worcester, V.P.
 F. H. Baker, Worcester.
 W. P. Bowers, Clinton, Ex-P.
 L. R. Bragg, Webster.
 W. J. Delahanty, Worcester.
 G. A. Dix, Worcester.
 M. F. Fallon, Worcester.
 Homer Gage, Worcester.
 J. J. Goodwin, Clinton.
 R. W. Greene, Worcester.
 David Harrower, Worcester, M.N.C.
 E. L. Hunt, Worcester.
 A. G. Hurd, Millbury.
 A. W. Marsh, Worcester.
 L. C. Miller, Worcester.
 C. B. Stevens, Worcester.
 G. O. Ward, Worcester.
 F. H. Washburn, Holden.
 S. B. Woodward, Worcester, Ex-P.

WORCESTER NORTH,

L. F. Baker, Fitchburg, V.P.
 W. E. Currier, Leominster.
 J. G. Henry, Winchendon.
 H. R. Nye, Leominster, M.N.C.
 A. H. Quessy, Fitchburg.

CENSORS, 1922-1923.

BARNSTABLE

W. D. Kinney, *Supervisor*.
 J. P. Nickerson, West Harwich.
 E. E. Hawes, Hyannis.
 C. E. Harris, Hyannis.
 E. S. Osborne, West Dennis.

BERKSHIRE

Henry Colt, Pittsfield, *Supervisor*.
 M. M. Brown, North Adams.
 A. C. England, Pittsfield.
 H. E. Stockwell, Stockbridge.
 Nathan Finkelstein, Pittsfield.

BRISTOL NORTH

F. A. Hubbard, Taunton, *Supervisor*.
 H. B. Baker, Taunton.
 T. F. Clark, Taunton.
 A. R. Crandell, Taunton.
 T. J. Robinson, Taunton.

BRISTOL SOUTH

W. A. Dolan, Fall River, *Supervisor*.
 R. W. French, Fall River.
 C. J. Leary, New Bedford.
 S. V. Merritt, Fall River.
 I. N. Tilden, Mattapoisett.

ESSEX NORTH

R. V. Baketel, Methuen, *Supervisor*.
 J. E. Bryant, Haverhill.
 R. C. Hurd, Newburyport.
 F. E. Smith, North Andover.
 E. P. Laskey, Haverhill.

ESSEX SOUTH

J. F. Donaldson, Salem, *Superior*.
 C. L. Curtis, Salem.
 A. T. Hawes, Lynn.
 R. E. Foss, Peabody.
 H. P. Bennett, Swampscott.

FRANKLIN

R. P. Croft, Greenfield, *Superior*.
 C. L. Upton, Shelburne Falls.
 J. W. Cram, Colrain.
 H. N. Howe, Greenfield.
 C. F. Canedy, Greenfield.

HAMPDEN

A. C. Eastman, Springfield, *Superior*.
 G. D. Henderson, Holyoke.
 F. L. Everett, Springfield.
 J. J. Carroll, Holyoke.
 F. T. Clark, Westfield.

HAMPSHIRE

A. J. Bonneville, Hatfield, *Superior*.
 P. H. Smith, Hadley.
 H. G. Rockwell, Amherst.
 J. D. Collins, Northampton.
 E. W. Whitney, Northampton.

MIDDLESEX EAST

Ralph Putnam, Winchester, *Superior*.
 H. A. Gale, Winchester.
 F. O. West, Woburn.
 E. S. Jack, Melrose.
 F. T. Woodbury, Wakefield.

MIDDLESEX NORTH

J. H. Lambert, Lowell, *Superior*.
 E. J. Clark, Lowell.
 G. A. Lavalée, Lowell.
 J. A. Gage, Tyngsborough.
 J. P. McAdams, Lowell.

MIDDLESEX SOUTH

C. B. Fuller, Waltham, *Superior*.
 I. J. Fisher, West Newton.
 James Glass, Framingham.
 J. P. Nelligan, Cambridge.
 H. E. Buffum, Somerville.

NORFOLK

C. F. Stack, Hyde Park, *Superior*.
 E. T. Rollins, Jamaica Plain.
 T. J. Murphy, Roxbury.
 G. G. Bullfinch, Brookline.
 A. A. MacDonald, Dorchester.

NORFOLK SOUTH

G. M. Sheahan, Quincy, *Superior*.
 F. W. Crawford, Holbrook.
 A. J. Roach, Braintree.
 W. G. Curtis, Wollaston.
 F. R. Burke, Quincy.

PLYMOUTH

F. J. Ripley, Brockton, *Superior*.
 J. H. Drohan, Brockton.
 E. J. Beaulieu, Whitman.
 W. W. Fullerton, Brockton.
 L. B. Reed, Plymouth.

SUFFOLK

G. B. Fenwick, Chelsea, *Superior*.
 T. J. O'Brien, Boston.
 R. H. Vose, Boston.
 G. A. Leland, Jr., Boston.
 P. H. Lahey, Boston.

WORCESTER

F. H. Washburn, Holden, *Superior*.
 E. H. Mackay, Clinton.
 C. A. Sparrow, Worcester.
 E. H. Trowbridge, Worcester.
 J. J. Cummings, Worcester.

WORCESTER NORTH

A. H. Quessy, Fitchburg, *Superior*.
 G. P. Norton, Fitchburg.
 C. E. Woods, Lunenburg.
 C. S. Brigham, Leominster.
 T. R. Donovan, Fitchburg.

COMMISSIONERS OF TRIALS,
1922-1923.

BARNSTABLE, E. S. Osborne, West Dennis.
 BERKSHIRE, F. C. Downing, Stockbridge.
 BRISTOL NORTH, C. S. Holden, Attleborough.
 BRISTOL SOUTH, D. P. O'Brien, New Bedford.
 ESSEX NORTH, I. J. Clarke, Haverhill.
 ESSEX SOUTH, J. E. Simpson, Salem.
 FRANKLIN, T. F. Leary, Turners Falls.
 HAMPDEN, F. B. Sweet, Springfield.
 HAMPSHIRE, M. E. Cooney, Northampton.
 MIDDLESEX EAST, E. C. Fish, Melrose.
 MIDDLESEX NORTH, F. E. Varney, North Chelmsford.
 MIDDLESEX SOUTH, A. W. Griffin, Malden.
 NORFOLK, M. V. Pierce, Milton.
 NORFOLK SOUTH, N. S. Hunting, Quincy.
 PLYMOUTH, Gilman Osgood, Rockland.
 SUFFOLK, Channing Frothingham, Jr., Boston.
 WORCESTER, W. P. Bowers, Clinton.
 WORCESTER NORTH, C. H. Bailey, Gardner.

OFFICERS OF THE DISTRICT MEDICAL
SOCIETIES.

Elected by the District Medical Societies Between
 April 15 and May 15, 1922.

BARNSTABLE.—H. D. Handy, Harwich, *President*;
 E. F. Curry, Sagamore, *Vice-President*; P. P. Hen-
 son, South Yarmouth, *Secretary*; H. B. Hart, Yar-
 mouthport, *Treasurer*; E. E. Hawes, Hyannis, *Libra-
 rian*.

BERKSHIRE.—G. H. Thompson, North Adams, *Presi-
 dent*; J. A. Sullivan, Pittsfield, *Vice-President*; A. P.
 Merrill, Pittsfield, *Secretary*; C. T. Leslie, Pittsfield,
Treasurer.

BRISTOL NORTH.—Sumner Coolidge, Middleborough,
President; W. O. Hewitt, Attleborough, *Vice-Presi-
 dent*; A. R. Crandell, Taunton, *Secretary*; R. D.
 Dean, Taunton, *Treasurer*.

BRISTOL SOUTH.—H. C. Allen, New Bedford, *Presi-
 dent*; R. P. Butler, Fall River, *Vice-President*; A. J.
 Abbe, Fall River, *Secretary and Treasurer*.

ESSEX NORTH.—F. D. McAllister, Lawrence, *Presi-
 dent*; J. J. Bartley, Lawrence, *Vice-President*; J.
 Forrest Burnham, Lawrence, *Secretary*; E. H. Gan-
 ley, Methuen, *Treasurer*.

ESSEX SOUTH.—F. W. Baldwin, Danvers, *Presi-
 dent*; J. A. Shatswell, Beverly, *Vice-President*; R. E.
 Stone, Beverly, *Secretary*; G. Z. Goodell, Salem,
Treasurer; C. M. Cobb, Lynn, *Librarian*.

FRANKLIN.—H. A. Snitor, South Deerfield, *Presi-
 dent*; F. A. Millett, Greenfield, *Vice-President*;
 Charles Moline, Sunderland, *Secretary and Treas-
 urer*.

HAMPDEN.—M. B. Hodskins, Palmer, *President*; R. S. Benner, Springfield, *Vice-President*; H. L. Smith, Springfield, *Secretary and Treasurer*.

HAMPSHIRE.—W. J. Collins, Northampton, *President*; J. E. Hayes, Northampton, *Vice-President*; E. E. Thomas, Northampton, *Secretary and Treasurer*; L. O. Whitman, Northampton, *Librarian*.

MIDDLESEX EAST.—C. E. Ordway, Winchester, *President*; Robert Chalmers, Woburn, *Vice-President*; A. E. Small, Melrose, *Secretary*; Richard Dutton, Wakefield, *Treasurer*; G. W. Nickerson, Stoneham, *Librarian*.

MIDDLESEX NORTH.—T. F. Carroll, Lowell, *President*; J. B. O'Connor, Lowell, *Vice-President*; T. A. Stamas, Lowell, *Secretary*; T. B. Smith, Lowell, *Treasurer*; P. J. Meehan, Lowell, *Librarian*.

MIDDLESEX SOUTH.—E. H. Bigelow, Framingham, *President*; E. A. Darling, Cambridge, *Vice-President*; F. B. M. Cady, Cambridge, *Secretary*; Edward Melus, Newton, *Treasurer*.

NORFOLK.—W. J. Walton, Dorchester, *President*; W. W. Howell, West Roxbury, *Vice-President*; Bradford Kent, Dorchester, *Secretary*; G. W. Kaan, Brookline, *Treasurer*.

NORFOLK SOUTH.—F. E. Jones, Quincy, *President*; C. A. Sullivan, South Braintree, *Vice-President*; R. M. Ash, Quincy, *Secretary, Treasurer and Librarian*.

PLYMOUTH.—A. L. Beals, Brockton, *President*; F. H. Burnett, Brockton, *Vice-President*; W. C. Keith, Brockton, *Secretary, Treasurer and Librarian*.

SUFFOLK.—J. S. Stone, Boston, *President*; C. M. Smith, Boston, *Vice-President*; R. H. Miller, Boston, *Secretary*; D. J. Bristol, Jr., Boston, *Treasurer*; E. C. Streeter, Boston, *Librarian*.

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Book Reviews.

The Vitamins. By H. C. SHERMAN and S. L. SMITH. 273 pp. New York: Chemical Catalog Co. 1922.

This volume, which is one of the American Chemical Society monographs, is probably the best and most impartial summary of the knowledge of vitamins which has appeared. The subject is discussed in the conventional manner: an historical introduction; the antineuritic vitamin (water-soluble B); the antiscorbutic vitamin (vitamin C); the fat-soluble vitamin (vitamin A); a chapter on "Vitamins in the Problem of Food Supply," and a bibliography of about a thousand titles.

In discussing the three recognized vitamins, the authors follow a uniform plan, summariz-

ing, in order, the evidence of the existence of the vitamin; its occurrence in foods; its physiological and, so far as they are known, its physical and chemical properties. Elaborate tables are given showing the occurrence and the relative abundance of the vitamins in all of the common foods: milk, grains, meats, vegetables, etc.

This summary of present knowledge brings out forcibly the unsatisfactory state of the entire subject: while an immense amount of work has been done on the distribution of the vitamins, very little has been accomplished in determining what they are or how they act.

The authors remark in the preface that it is hoped that the present work may do something to show the true significance of the vitamins and to avoid exaggerated impressions, and, to the latter end, suggest that the non-technical reader read the last chapter ("Vitamins in the Problem of Food Supply") first. In this chapter it is stated: "Even with our present knowledge we believe it safe to say that with a dietary selected to make the best use of our ordinary staple foods there will rarely, if ever, be occasion to purchase vitamins in any other form, or to give any greater anxiety to the vitamins than to some other factors which enter into our present conception of nutritive requirements and food values." The essentials of an adequate food supply are briefly enumerated: "Sufficient amounts of digestible organic nutrients to yield the necessary number of calories of energy; enough protein of suitable sorts; adequate amounts and suitable proportions of a number of mineral or inorganic elements; and enough of each of at least three kinds of food hormones or vitamins."

Although there may be no pressing practical need for isolated vitamins, and although it is quite probable that other deficiencies in our diet are of equal or greater importance, the scientific mind will not be satisfied until the nature of these mysterious elements and their method of action are known: in fact, such knowledge is a prerequisite to a really intelligent system of dietetics.

Arterial Sclerosis. By LOUIS FAUGERES BISHOP, Oxford Medical Publications. London.

This readable book is the exposition of the author's theory of the cause of arterial sclerosis and its logical treatment. Fortunately the theory is not arguable. There is little definite proof to support it and equally little to controvert it. Therefore the author is not obliged to occupy much of the reader's time in defense of his theory,—a procedure which is seldom profitable,—and is free to discuss at length the results of treatment by his method, so that there is much of practical value in the book.

Bishop believes that arterial sclerosis is due to low-grade protein sensitization, and that the treatment consists essentially in a diet containing few kinds of protein, but not necessarily greatly restricted in amount of protein. Such a diet would certainly be better for most arterio-sclerotics than the "protein free diet" still used by many. The author believes that the best form in which to give protein is as cheese or vegetables. His chapter on cheese is interesting and enlightening.

The main value of the book, however, is that it contains a great deal of careful clinical observation and much advice concerning the details which make up so large a part of the treatment of the patient with hard arteries. Whether the theory presented can be definitely proven or not, the book is worth while because it brings home the fact that the successful treatment of arterial sclerosis is composed of moderation and such optimism as can be honestly exhibited.

Nutrition and Growth in Children. By WILLIAM R. P. EMERSON. New York: D. Appleton & Co.

Dr. Emerson has made a very interesting contribution to a problem of great importance and extraordinary complexity. He has classified children according to a scale of height and weight. By these standards he shows that from one quarter to one half of all children fall more than 7% below what he has fixed as a desirable standard.

By carefully worked out methods he brings a given group of malnourished children to a "normal" condition. The methods are clearly described and in his hands are obviously highly successful.

Without question Dr. Emerson's work is of extraordinary value and criticism is directed only at details.

Two obvious questions arise in the minds of those accustomed to dealing with masses of children. In the first place, is "malnutrition" as definite an entity as Dr. Emerson thinks it is? In the second place, is the height to weight relation with its definitely stated normal limits sufficiently accurate?

The reviewer is skeptical on both these points, but it is entirely clear that discussion involves working out an alternative? At present Dr. Emerson holds an almost impregnable position from which no one appears to be able to dislodge him, for lack of stronger weapons than doubt.

Influenza, Essays by Several Authors. Edited by F. G. CROOKSHANK, M.D. (Lond.), F.R.C.P., Physician: The Prince of Wales General Hospital, The French Hospital and Dispensary, and St. Mark's Hospital, London. Consulting Physician, New End Hospital, Hampstead, London: William Heinemann. 1922.

Dr. Crookshank, in a most scholarly collection of essays, deals with the whole conception of influenza from a broader and more analytical viewpoint than most of us, I think, are accustomed to consider it. Seven of the essays included are contributed by the editor, and in these the epidemiology, historical conceptions, and definition of Influenza are taken up.

During 500 years there have been 15 great pandemics of disease; each was considered a new disease, and many names have been given to them: "epidemic catarrhal fever," the "dengue" of a century ago, the "sweating sicknesses" of the 15th and 16th centuries; all, viewing history from a distant vantage point, are analogous to what we call "influenza." Most of these "epidemic constitutions" were preceded or followed by lesser outbreaks of encephalomyelitis or meningo-encephalomyelitis, meningitis, poliomyelitis, encephalitis, or whatever they may have been named at various times. This most variable of diseases we have attempted to classify and pigeonhole according to specificity of type and etiology, but it defies classification. As W. H. Hamer writes (p. 106), "One case of measles is, of course, very similar to another case. . . . It is far otherwise in influenza, which is ever the 'new disease' or the 'new acquaintance,' and is, by general consent, the most protean of all maladies."

To quote him further: "There follows the attempt to grasp the conception of an 'influenza constitution' in the light of all the historical evidence. 'It will be seen, then, that the facts elicited on study of the relationship between influenza and cerebro-spinal fever in the recent prevalences (*i.e.*, those of 1915-1918), or within the period of notification statistics, or on a wider view, within that covered by Hirsch's chronologies, are strikingly confirmed, if in some measure also modified and corrected, on taking a broader sweep still and pursuing inquiry, by means of the great storehouses of facts collected by Creighton, into the history of the last five centuries of the influenzas, cerebro-spinal fevers, etc., which lurk more or less disguised under such designations as sweats, agues, cerebritis, encephalitis, and typhus (cerebralis or other).'"

Dwight M. Lewis, in discussing epidemiological considerations, points out that the chief source of confusion has been the persistent way in which certain *correlated* organisms have been considered as the organisms of independent, autonomous and unrelated diseases.

Taking up the bacteriology of the disease, Robert Donaldson shows the vagueness of the term influenza, and the relatively small proportion of cases in which Pfeiffer's bacillus was demonstrated. Only the second of Koch's postulates has been adequately fulfilled by this organism.

Excellent résumés of clinical and therapeutic considerations, nervous syndromes, ocular affec-

tions, surgical aspects, complications affecting the throat, nose and ear, the skin lesions, and influenza complicating pregnancy, labour, the puerperium, the diseases of women are contributed by Abrahams, Jelliffe, McHoul, Boyd, Whale, Davis, and Bourne.

Crookshank concludes the volume with "The Theory of Influenza." We must study history and epidemiology, as well as individual cases and epidemics. To answer the questions "What is Influenza?" and "What is the Cause of Influenza?" "we must comprehend the whole nexus of circumstances and conditions involved, stretching back from the reactions of personal and bacteriological factors in respect of individual cases, through the interplay of communal and local qualities and determinants concerning epidemics, to the more remote and as yet mysterious cosmic precedents that ultimately govern and control the springs and origin of life itself, and the secular modifications and transformations that to us are appreciable as plague and pestilence: '*ex influenza coelesti*.'"

It will be well worth the while of anyone who saw the recent epidemic or who is in any way interested in infectious and epidemic disease to read this stimulating volume.

Précis de Pathologie Médicale. Par MARCEL LABBÉ ET G. VITRY. Masson et Cie, Editeurs.

This work, when completed, will consist of six volumes. At the present time only Volumes 4 and 5 are finished. The complete work is intended to be a compendium of medicine. Volume 1, infectious diseases and intoxications; Volume 2, diseases of the respiratory apparatus; Volume 3, diseases of the heart and blood vessels; Volume 6, diseases of the central nervous system.

The two volumes inspected by the reviewer are Volume 4, diseases of the blood and hematopoietic organs, and diseases of the kidney, and Volume 5, diseases of the digestive apparatus and of nutrition. If the remainder of the series proves to be as excellent as Volumes 4 and 5, the series will present a remarkably compact and complete outline of medicine. The books are written in a very easy style, and can be used by persons having a rather elementary knowledge of French, providing they have mastered medical nomenclature. Although they are presented as compendiums, they cannot be considered to be brief, as the various subjects are thoroughly covered. The system of presentation consists in the consideration of an organ, its physiology, its diseases, and the pathology. The articles are so written that they bring together and correlate all that a student should know about the particular organ. The physiology, pathology and bacteriology, and clinical laboratory methods are considered. There are even such questions as should be asked the patient in arriving at a diagnosis. Likewise, the making of physical examinations for the various

organs is discussed and very adequately illustrated.

The therapeutic notes are brief and general. Surgical treatment, when indicated, is of course not detailed. The laboratory methods are not given in detail, in every case, but suggestions as to procedures are always given. The pathological anatomy is very well discussed and fairly well illustrated, mostly in black and white, reproduced in half-tones from drawings. The illustrations are particularly well chosen, whether in regard to the illustration of pathology and parasitology, or in regard to clinical features.

The nomenclature is thoroughly reliable in regard to bacteriology, parasitology and pathology.

The six volumes make a rather lengthy work for the kind of reading the medical student is apt to do in preparation for hospital examinations and state board examinations, but the reviewer knows of no work in English which is approximately equally well done.

For practitioners in medicine and for pathologists who have a wish to correlate the clinical and pathological aspects of disease, the work is admirable. It is to be recommended without reservation to those students and practitioners who desire to keep in use their knowledge of French in very useful study.

An unfortunate feature of the books is that references to original articles are not given, in spite of the fact that many authors are quoted. In the short perusal made by the reviewer, the inability to find original articles quoted proved to be disappointing.

The alphabetical index, which we are accustomed to in American text-books, is as usual not found in these two French volumes.

The Oxford Index of Therapeutics. Edited by VICTOR E. SORAPURE, Oxford Medical Publications, Henry Frowde and Hodder and Stoughton. London, 1921.

The title of this book describes its contents. It is a small encyclopedia. It is designed for the general practitioner and is to be looked upon as a concise and handy reference volume for him to turn to. The articles, contributed by some seventy-five physicians from America and Great Britain, are termed monographs in the preface. This perhaps is misleading, as they are short, concise expositions without references which desirably avoid describing a great variety of treatments. They give a suitable method for dealing with each condition considered, though occasionally methods well recognized by some leading authorities are omitted. In some instances the subject is presented so briefly that from the text one could not adequately follow out the treatment. However, this does not detract from the value of the volume, because as an index it prevents the reader from forgetting possibilities. A very brief statement regarding

etiology and diagnosis helps clarify many of the articles.

The expositions are arranged under group headings whenever the clinical relationship is such as to justify this, such as "Gastro-intestinal conditions," but many topics not conveniently falling into these groups stand by themselves in alphabetical order. The excellent, approximately seventy-five page index at the end of the volume serves for detailed reference. The last two hundred-odd pages are given to a description of the therapeutic agents.

Like all Oxford publications, the appearance and printing of the volume are attractive and pleasing.

Nervous and Mental Diseases. Edited by PETER BASSOE, M.D. Chicago: The Year Book Publishers.

This short annual volume of well-chosen neurological reviews covers critically a large field of neurology and psychiatry. The papers abstracted and discussed are all from the literature of 1921. The principal topics taken up are: Symptomatology; The Neuroses; The Cerebrospinal Fluid and the Meninges; Diseases of the Brain; Neurosyphilis; Diseases of the Spinal Cord; Diseases of the Peripheral Nerves, and Diseases of the Endocrine Glands. There is also a section of sixty-one pages on Mental Disorders. The editor makes the reviews more interesting and instructive by adding parenthetical comments which are of great aid in properly evaluating the contributions.

Perhaps the most interesting group of papers discussed is that dealing with Epidemic or Lethargic Encephalitis. As in other fields, only the significant papers are reviewed, but they are well grouped so as to bring out the advancement in knowledge.

In the Preface the author states: "This year's literature on nervous and mental disease has been abundant. German investigators in particular have published a great deal of material which was pigeon-holed during the war. The usual profusion of colored plates is no longer seen, and the text illustrations are sometimes unsatisfactory on account of the inferiority of the paper used. Among the more important German monographs representing years of thorough clinical investigation, we may single out those by Gennerich and Nonne on a subject of perennial interest—Syphilis of the Nervous System. The French, whose work also maintained a high standard during the trying war period, have furnished new contributions of lasting value, the most noteworthy of the year dealing with paralysis agitans and the sequelae of epidemic encephalitis. Much valuable work has also been done in America."

Practical Infant Feeding. By LEWIS WEBB HILL, M.D., Junior Assistant Physician to the

Children's Hospital, Boston; Assistant in Pediatrics, Harvard Medical School. Octavo of 483 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1922.

This book is written in a conversational style, which makes it easy and interesting reading, but also tends to looseness of construction and verbosity. The author first dissects the physiology and pathology of digestion and nutrition, then takes up breast and artificial feeding, disturbances of digestion and nutrition in the bottle fed, the diarrheal diseases, indigestion in older children, the management of premature infants, and finally the diseases of nutrition and eczema. He shows a wide knowledge of pediatric literature, both American and foreign, analyzes it intelligently and utilizes his knowledge practically and judiciously. He emphasizes the importance of thinking and calculating in percentages of the various food elements, stresses the necessity of determining the etiological factor in disturbances of digestion and nutrition and basing treatment on it, and shows that babies must be fed individually, not collectively. It is very pleasing to one who was trained by Dr. Rotch and who has had a part in building up the Boston school of pediatrics to know that there is at least one young man who seems likely to carry on the teachings and uphold the traditions of this school.

It would be easy to pick flaws in this book, as in any other, and there are many points which are open to criticism. This is natural, when a book deals with a subject concerning which there are so many differences of opinion as there are about infant feeding. In general, nevertheless, little can be said, except in approval. The various subjects are taken up rationally and clearly and in every instance the reasons for treatment carefully explained. The chapter on the disturbances of digestion and nutrition in the bottle fed is especially good. We wish that we could be as optimistic regarding the results of the treatment of eczema in infancy as is the author.

The practitioner and student who is willing to think and to be taught how to think will find this work most helpful and most inspiring. The man who wishes to be told how to feed all babies by rule of thumb and how to treat all disturbances of digestion and nutrition with drugs will be disappointed.

Management of the Sick Infant. By LANGLEY PORTER and WILLIAM E. CARTER. St. Louis: C. V. Mosby & Co.

In some ways this book is excellent, in others it is disappointing.

The first ten chapters are devoted to a discussion of symptoms, such as vomiting, fever, hemorrhage, etc. These chapters, with the exception of those on diarrhea and nutrition, can-

not be said to be valuable or interesting, and as is the usual case, a catalogue of all the causes of vomiting, fever or cough, makes rather hard reading.

The next ten chapters are devoted to diseases of the various organs, the next two to technique of methods of diagnosis and treatment, such as lumbar puncture, etc., and to food recipes. The last two chapters take up prescriptions for use in infancy, and the treatment of various forms of poisoning.

The chapter on methods is very good, and the excellent illustrations supplement in a graphic way the descriptions.

For the most part the chapters on treatment are sound, and full of common-sense procedures that the authors have employed. One cannot quite agree with them, however, that the "treatment of erysipelas in infancy is thoroughly satisfactory." Neither would most pediatricists be of the opinion that the serum treatment of infectious diarrhea in infancy is specific, or that the treatment of bronchial asthma with vaccines made from the stools was advisable.

The book is poorly arranged and makes hard reading on account of the headings that are used; there are too many black faced type headings scattered through the text; instead of making the subject matter clearer, this tends to irritate the reader. Despite these defects there is much that is good in the book; one feels that it is based on a large personal experience, as it undoubtedly is, and the discussions of many of the diseases considered, especially pneumonia, pyelitis and tuberculosis, are excellent.

The portions devoted to treatment are intensely practical, and for the most part sound, and the reviewer cannot help but feel that the book would have been a great deal better if the authors had confined themselves to this, instead of mixing in so much other material.

The Healthy Child from Two to Seven. By FRANCIS HAMILTON MACARTHUR. New York: The Macmillan Co.

This book cannot be praised too highly; every page is full of sound common sense. The general plan of the book is as follows: in nine chapters the author discusses the home and its surroundings, feeding, sleep and rest, play and growth, child nature and education, steady nerves and healthy mind, care of the child's body, common diseases and disorders of childhood, prevention of contagious diseases and common disorders of childhood, and common emergencies of childhood. The chapters on food, diseases, care of the body and so forth, are thorough, sound, and excellent in every way, but might have been written by any experienced common-sense physician: the chapters on play and growth, child nature, and steady nerves and healthy mind are the best that the reviewer has ever seen in any book, and show a very unusual

insight into child nature. In simple, beautifully chosen language, the author discusses the mental and moral training of children in a truly masterly manner. It is a pleasure to note the entire absence of the words "child psychology" in this book: it is a pleasure to get away from fads and "ologies" of all sorts; it is a relief to find someone who has observed children with true understanding, and who knows how to put his thoughts into such form that they instantly bring to mind practical images. Such a passage as the following is typical of the book:

"Another characteristic of the child nature is what might be called slowness of perception. That this is natural to an untrained mind would seem to be apparent to all, yet, oftentimes fathers and mothers forget this fact, and expect the child mind to comprehend at once, and demand instant obedience. It is not strange that sometimes the young child instinctively prefers to do that with which it is already familiar, or acts slowly in doing something new and unfamiliar. It is something of the same quality inherent in us all—the instinctive desire to understand before we attempt to do. If we are patient and reasonable in our demands, and extend to our children the same courtesy which we ask for ourselves, we shall have much less cause for discipline."

The book is to be thoroughly recommended in every way; it should be read by every parent, and will show them, as the author says, that "the sacred office of parent means more than to be mere providers of physical necessities; it is a teaching office having boundless possibilities."

The Organs of Internal Secretion. By IVO GEIKE COBB, M.D., M.R.C.S. Third Edition. New York: William Wood and Co. 1921.

The author describes this work as a "Book for the General Practitioner," and states that "it makes no claim to be considered an exhaustive or complete account of the endocrine glands, neither can it be considered as a comprehensive therapeutic guide to the administration of the organic extracts."

There is nothing in the text which leads the reviewer to take exception to the latter statement, but its value to the G. P. is open to doubt. What the practitioner needs are facts concerning disease and its treatment, for it is usually a condition and not a theory which confronts him. It would have been better, therefore, if the author had confined himself to a discussion of the few facts that are known, and omitted to mention many theories.

The chapter on exophthalmic goitre, for example, makes no mention of the important evidence afforded by estimating the basal metabolism in this condition, but after mentioning psychoanalysis, water from "goitre wells," hypodermic injection of bile salts, X-ray, "thyroidectin," thymus gland and calcium salts as methods of treatment, he states that operative

interference should be reserved for the grave cases only, and that it should be performed only after all other remedies have failed. After time has been allowed for each of the above remedies to have failed, the results of surgery could hardly be expected to excite enthusiasm for that method of treatment.

The chapters on the other endocrine glands are open to the same criticism; they do not distinguish sufficiently between theory and fact. In the chapter on the Application of the Hormones, it is stated that "The legitimate uses to which thyroid extracts may be put are not confined to myxedema, or even definite sub-myxedema; there are a number of symptoms, sometimes isolated, which may be remedied by this substance." If such isolated symptoms are due to thyroid lack—and here the estimation of basal metabolism will tell the story—the use of thyroid for their relief is legitimate. But the use of thyroid in any given case, because it has "remedied" a similar symptom in another case is unjustifiable, and occasionally dangerous.

The book is clearly written, and understandable. Physically it is attractive, because of its clear print and comfortable size. Because of the lack of definite statements concerning the internal secretions, it is of questionable value to the practicing physician. Granted that few definite statements can as yet be made concerning the endocrines, it were better not to clutter the field with speculation and theory, which lead too often to loose thinking and the indiscriminate use of glandular preparations.

"The Pathological Gall-Bladder." *Annals of Roentgenology*, Vol. II. By ARIAL W. GEORGE, M.D., and RALPH D. LEONARD, M.D.

The subject is presented in the form of a monographic atlas and is designed for a book of reference, particularly for those who are specialists in roentgenology. The captions of the illustrations and the introductory text of each division are printed in English, French and Spanish. It contains one hundred and thirty-five roentgen ray studies, three of which are photographic and two text illustrations, all of which are exceptionally good.

The first chapter is historical. In the second, the authors discuss in detail the technique which they have found most satisfactory, and describe the apparatus necessary for satisfactory work. In the third chapter there is a very good classification of gall-stones, and the differential interpretation of gall-stone shadows from shadows presenting a similar appearance is well covered. The authors attribute considerable diagnostic importance to the presence or absence of the gall-bladder shadow and discuss its differentiation from other shadows which may resemble it.

In the opinion of the reviewer, the appearance of a shadow resembling the gall-bladder in

outline should be given very little weight in the final diagnosis.

Under the heading of "Indirect Evidence," the authors discuss the data obtained from an examination with the barium meal and its value in the diagnosis of gall-bladder disease, and the importance of this evidence is rightly emphasized.

On the whole, the book is a convincing presentation of the value of the X-ray in the diagnosis of gall-bladder disease. It should be remembered that it is written as an atlas and not as a text book.

Radium Therapy. By FRANK EDWARD SIMPSON, A.B., M.D., Professor of Dermatology, Chicago Policlinic, etc. C. V. Mosby Co. 166 original engravings.

With the ever-increasing use of radium by clinicians, many of whom have little idea of the physics and biologic effects of radioactivity, such a book as *Radium Therapy* should prove very useful. It is clear, concise, scientific (as far as is possible in this comparatively unexplored field) and practical.

The author starts, of course, with an outline of the history, chemistry and physics of radioactive substances. He gives in considerable detail the experimental work upon which the practical application of radium is based. He describes the method of obtaining emanation and the various ways of applying radium for therapeutic purposes.

Dosage and the technic of radiation are treated at some length, after which the application of radium therapy in the special branches of medicine is considered.

Although the author is himself a dermatologist, his experience with the use of radium in surgery and in medicine would seem to be sufficiently wide to enable him to speak with a good deal of authority upon the subject.

His book is thorough in its fundamentals, sound in its principles, and represents the best opinions of the present day in regard to radium therapy.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALDONI	CHESTER M. JONES
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JOHN S. HODGSON	WILDER THLESTON
FRED S. HOPKINS	BRYANT D. WETHERELL

ASTHMA: ITS PATHOLOGY AND TREATMENT.

BROWN (*Edinburgh Med. Jour.*, Feb., 1922) discusses in a practical way, with an elaborate bibliog-

raphy, the subject of the pathology and treatment of asthma. His remarks on the treatment of this condition are practical and sound. The list of references is particularly full, especially concerning the English and German investigators. The references to American writers on this subject are conspicuous by their absence.

[J. B. H.]

OBSCURE INTESTINAL COLIC.

GRAY (*Brit. Med. Jour.*, Feb. 18, 1922) discusses the general subject of obscure pain of abdominal origin, briefly summarizing his opinion as follows:

"Obscure intestinal colic may arise from temporary causes and be of no real significance; its treatment may be medical, or it may constitute a grave warning of an impending surgical crisis.

"A full understanding of its significance depends, I am convinced, on an appreciation of the fact that the bowel itself is insensitive; that colicky pain arises from, and is referred to, the mesentery; and that the mechanism of colic consists in the natural attempt of the bowel to drive onwards a diseased or inert area, thereby inducing an abnormal tension on the associated mesentery."

[J. B. H.]

BLEEDING ULCER OF THE DUODENUM ASSOCIATED WITH CHOLECYSTITIS.

JUDD (*Ann. of Surg.*, April, 1922) calls attention to the existence of certain cases in which bleeding of a more or less severe type, with a probable diagnosis of gastric or duodenal ulcer, has occurred in cases which on operation are found to be associated with a more or less severe degree of cholecystitis. He reports four cases in detail and states that there is abundant evidence to show that cholecystitis and hepatitis may be the source of the infections which results in bleeding, and he also thinks there is evidence which suggests that cholecystitis may be the source of the infection causing this symptom even in the presence of ulcer of the stomach or duodenum.

[E. H. R.]

THE TREATMENT OF SURGICAL TUBERCULOSIS WITH THE CARBON-ARC LAMP.

SAUER (*Ann. of Surg.*, April, 1922) writes that the carbon-arc lamp is an effective agent in curing cases of surgical tuberculosis; that it is as effective as the natural sunlight and has the advantages of convenience and independence of the weather; that it is just as effective, if not more so, than the x-rays, without the attendant dangers; that it is far more effective than the quartz-mercury vapor lamp, as has been amply demonstrated by Reyn.

[E. H. R.]

THE CAUSE OF DEATH IN HIGH INTESTINAL OBSTRUCTION.

ELLIS (*Ann. of Surg.*, April, 1922) draws the following conclusions from his observations:

1. That from the intestinal content in cases of high obstruction, a poison can be isolated by precipitation with alcohol, extraction with boiling water and reprecipitation with the aid of magnesium sulphate.

2. That it is not possible to obtain such a poison with this method from the intestinal content of a normal dog prepared immediately after removal.

3. That a poison which, when judged by the means at our disposal, is identical, can be obtained from conditions other than actual obstruction, such as the intravenous injection of the high obstruction

toxin into normal animals, the removal of the adrenals, portal obstruction, and in experimental, acute, fulminating, non-bacterial peritonitis.

4. That this poison is undoubtedly elaborated in the cells of the greater part of the mucosa of the small intestine, but chiefly in those of the duodenum, and that it is manifestly excreted, partly into the lumen of the intestine, but the larger part passes into the lymph stream.

5. That the clinical similarities between acute pancreatitis and high obstruction are due either to a close relationship between the toxins involved, or possibly to the fact that acute pancreatitis actually produces conditions in the intestinal mucosa favorable to the production of the same toxin as is found in cases of high obstruction.

6. Since crepsin fails to exert any action upon the toxin, and since the toxin shows no lymphagogic action whatever, it seems necessary to conclude that the toxin is neither a proteose nor a hereto-proteose.

7. That the clinical advantage of gastric lavage may be explained by the removal of the toxic content and the favoring thereby of an increased excretion into the lumen of the intestine. In addition to this treatment, should be added the introduction of large amounts of saline, both intravenously and by the rectum, to further the excretion of the toxin both by the bowel and by the kidneys.

8. That the finding of the toxin in the intestinal content after the removal of the adrenals suggests that clinically adrenalin should be added to the saline infusion in sufficient amount so that a continuous supply of adrenalin is being furnished.

[E. H. R.]

TREATMENT OF FEBRILE ABORTION.

MAUTHNER (*Wien. Klin. Woch.*, April 6, 1922) discusses the individualized treatment of septic or febrile abortion, dividing cases into two groups, according to whether the cervix is or is not dilated or easily dilatable. For the former class, he recommends digital curettement, followed by irrigation, ergot, pituitrin, and wick drainage; for the latter, in addition, a preceutal digital dilation or anterior colpohysterotomy.

TREATMENT OF LISPING.

STERN (*Wien. Klin. Woch.*, April 20, 1920), from Fröschel's clinic for speech defects, in Vienna, discusses the treatment of the varieties of lisping.

[R. M. G.]

TREATMENT OF BARTHOLINITIS.

WEITGASSER (*Wien. Klin. Woch.*, April 27, 1922), from Matzenauer's clinic at Graz, reports nine cases of suppurative Bartholinitis treated by simple, conservative methods with successful result.

[R. M. G.]

NOSOGRAPHY IN MODERN MEDICINE.

PABER (*Annals of Medical History*, March, 1922), professor of internal medicine at the University of Copenhagen, Denmark, in an elaborate article on nosography in modern internal medicine, beginning with Sydenham, traces the work of the early English nosologists and the Paris school of anatomic diagnosis, through German physiological medicine and the bacteriological clinic, to present-day functional diagnosis and constitutional pathology. In his final remarks he summarizes the evolution of nosography, and points out that the final aim of medicine is to require such a knowledge concerning the etiology and consequent development of morbid

processes as to enable the adoption of the best and correct methods of action in prevention or treatment. [R. M. G.]

THE DIAGNOSIS AND TREATMENT OF TUBERCULOUS EMPYEMA.

HEDBLÖM, C. A. (*Surgery, Gynecology and Obstetrics*, April, 1922), writes:

1. Primary or idiopathic pleurisy with effusion, in a large proportion of cases, is probably tuberculous in nature.

2. A past history of pleurisy with effusion is common in cases of tuberculous empyema. In many cases the effusion is serious at the onset.

3. Tuberculous pleurisy may be primary or it may be secondary to a pulmonary, peritoneal, or other tuberculous lesion.

4. The onset of a tuberculous effusion may be insidious or it may be sudden and associated with an acute and severe constitutional reaction. A mixed pleural infection due to the perforation of a tuberculous cavitation often runs an acute and rapidly fatal course.

5. Diagnosis of tuberculous empyema is made by demonstration of the bacilli in the exudate, by animal inoculation, or by examination of the sectioned pleura.

6. A sterile effusion is probably tuberculous. An infected effusion may be tuberculous.

7. Empyema following primary idiopathic pleurisy with effusion, or empyema of insidious onset, especially in the presence of a pulmonary or other tuberculous condition, is probably tuberculous.

8. Empyema may be tuberculous in spite of persistently negative findings over a long period of time.

9. In a closed pleural cavity a sterile effusion, whether serous or purulent, should not be treated by open drainage, except in the presence of an impending perforation of the chest wall.

10. Repeated aspiration of only part of the fluid present is indicated in cases of serous effusion producing definite dyspnoea on exertion or symptoms of circulatory embarrassment.

11. The replacing of aspirated fluid by nitrogen or filtered air may be indicated in cases in which there are symptoms of active phthisis referable to the same side as the effusion.

12. A sterile purulent effusion should be treated as though it were serous if the lung expands when fluid is withdrawn. If the lung is fixed in a collapsed condition, or if the effusion persistently recurs, an extrapleural plastic operation is indicated.

13. Effusion in a closed cavity showing a mixed infection should be treated by the closed method with antiseptic solution irrigation, or by open drainage; the open drainage is indicated especially in cases of severe infection associated with extensive pulmonary tuberculosis, making irrigation hazardous.

14. Tuberculous empyema with a large bronchial fistula should be drained by the open method.

15. A large tuberculous empyema with mixed infection from a previous drainage operation or from spontaneous perforation of the chest wall requires a plastic operation, preferably with Dakin's solution.

16. A plastic operation, involving closure of a bronchus, offers the only prospect of cure in case of an associated large bronchial fistula.

17. Dakin's solution irrigation may be contraindicated in the presence of an extensively diseased lung, owing to its corroding action on any superficial lesion, possibly resulting in hemorrhage or the formation of a bronchial fistula.

18. A plastic operation is usually eventually required in the case of closed cavities when the empyema is of long standing, and of all large, open, secondarily infected cavities.

19. An extrapleural rib resection is indicated for the collapse of closed sterile cavities. The Boileau-Wilms operation is especially suitable for the collapse of large cavities without excessive thickening of the parietal pleura or rib deformity.

20. A skin or skin muscle plastic is indicated for the obliteration of relatively small cavities. Cases of long standing associated with greatly thickened pleura require an extensive resection of the entire chest wall after the method of Schede.

21. Operation in several stages is especially indicated in the treatment of tuberculous empyema, and, if practicable, it should be preceded by antiseptic solution irrigation. Such treatment should extend the indications for operation and should lower the post-operative mortality. [E. H. R.]

INFECTIOUS JAUNDICE IN BOMBAY.

PARMANAND (*Ind. Med. Gazette*, Feb., 1922) reports seven cases of epidemic jaundice in Bombay, in January, 1922. The symptoms at the beginning were headache, intestinal disturbance, and high, irregular fever. During this febrile period which lasted from four to eight days acute congestion of the bulbar conjunctiva was a well marked feature. Then followed a period of about eight days in which the fever dropped and deep jaundice developed, intestinal disturbance was aggravated, and there was nausea, vomiting and extreme weakness. The pulse became feeble and there was restlessness and a tendency to hemorrhage. After this period a gradual convalescence began. Spirochaetes were recovered from the urine and cultivated, some forms resembling very much the *treponema pallidum*. Intravenous injections of serum from convalescent patients and from actively immunized horses are recommended. Salvarsan has also proved useful. [L. D. C.]

GROWTH PROBLEMS FOLLOWING OSTEOMYELITIS OF ADOLESCENT LONG BONES.

SPEED, K. (*Surgery, Gynecology and Obstetrics*, April, 1922), from a study of a considerable number of cases, states that one should be extremely conservative in draining acute suppurative epiphysitis of adolescent long bones, and always in operating one should not reflect the periosteum any more than is necessary, that injury to the blood supply of the epiphysis is most serious, and he makes the following statements in conclusion:

1. Remember the law of nutrient arteries in relation to growing long bones, i.e., the nutrient arteries are directed toward the elbow and from the knee, and the epiphysis toward which the artery is directed unites first. The flula is an exception, of course. Consequently, the lower epiphysis of the femur, the upper epiphysis of the tibia, the lower epiphysis of the radius and ulna, and the upper epiphysis of the humerus all unite at last in their respective bones, and must be the most guarded.

2. Unless a bowing deformity in the leg or forearm tends to manifest itself rapidly and to cause great loss of function or threaten skin necrosis, splint correction of the extremity for at least one year is favored.

3. If both clinical and x-ray examination during the course of the year show that the bone is arrested in growth, a shaft resection of the companion bone, remote from the epiphysis, is performed to equalize length. Simple means (kanzaroo tendon) of holding the resected ends in apposition are used, followed by a firm splint until union takes place.

4. If the child is young (many years and inches of growth expected), after two or three years, when it is quite positively established that the epiphysis of the damaged bone has ceased all growth and is

obliterated, the analogous epiphysis of the fellow bone may be excised (epiphysectomy) to stop its overgrowth. Each bone then grows at an equal rate from the remaining epiphysis, and there is no fear of subsequently appearing bowing deformity. Length deformity will persist. [E. H. R.]

AN ANALYSIS OF THE END-RESULTS IN TWO HUNDRED THIRTY-TWO HYSTEROMYOMECTOMIES, WITH SPECIAL REFERENCE TO OVARIAN CONSERVATION.

CLARK, J. G., and NORRIS, C. C. (*Surgery, Gynecology and Obstetrics*, April, 1922), write as follows:

1. Hysteromyomectomy is productive of excellent end-results whether or not ovarian conservation is practised. Of all patients in our series, over 99.5 per cent. were cured or improved, and over 83 per cent. declared that their general health was good or improved one year or more after operation.

2. Better end-results and greater comfort to the patient can be secured as the result of ovarian conservation.

3. Everything being equal, better end-results follow the conservation of both ovaries than the retention of one, but one ovary is far better than none.

4. Conserved ovaries seldom give subsequent trouble. Among 171 cases in which ovarian conservation was practised, 261 ovaries were conserved, and in none of these patients was a second operation for the removal of the ovary necessary. This is a strong argument in favor of ovarian conservation in this class of cases, for if the conserved ovary does not give trouble, there can be no excuse for its removal.

5. That conserved ovaries may give subsequent trouble is conceded, as is also the fact that the series of cases quoted may have been unusually fortunate in this respect. Successful ovarian conservation depends upon the condition of the ovary at the time of operation, the maintenance of an adequate blood supply, and the retention of the ovary in its normal position.

6. We believe that undue emphasis has been placed upon the frequency of cystic and other forms of degeneration in conserved ovaries, and that attention to the points just mentioned will largely abrogate such disturbances.

7. Bearing in mind the fact that good results can be secured by performing bilateral oophorectomy, it is often better to sacrifice a doubtful ovary than to spare it. This is a point, however, on which each case must be judged individually.

8. When both ovaries are removed, the surgical menopause is by no means severe in all cases, those patients who suffer unduly being in the minority.

9. The age of the patient is not an unfailing criterion as to the severity of the surgical menopause in any given case. Young women will sometimes bear the loss of both ovaries well, whereas some of the most severe phenomena of the surgical menopause encountered in this series have occurred in patients past 40 years of age. This does not imply that the age is an unimportant factor in considering the question of ovarian conservation. Other things being equal, there is no doubt but that younger women suffer more severely as a result of a bilateral oophorectomy than do those who are older.

10. A more important guide than the age, however, is the temperament of the individual patient. The highly strung, neurotic woman is likely to suffer more severely than her more phlegmatic, asexual sister.

11. Each case should be individualized. The temperament of the patient should be studied, and a correlation of this with the history and the pathological process found at operation should determine the type of operation to be performed.

12. Conserved ovaries functionate.

13. Even in those patients in whom the ovary

does not function permanently, the occurrence of the surgical menopause is less abrupt and severe than in those women upon whom a bilateral oophorectomy has been performed. Among the former class of cases the artificial menopause generally resembles the normal menopause more closely than does that following the removal of both ovaries. [E. H. R.]

HUMAN ACTINOMYCOSIS, WITH SPECIAL REFERENCE TO SOURCE AND MODE OF INFECTION.

MATTSON, W. W. (*Surgery, Gynecology and Obstetrics*, April, 1922) writes as follows:

1. There is but one true species of micro-organism capable of producing actinomycosis in man and lower animals, and this is the one isolated by Wolff and Israel and later more fully described by Wright.

2. There is no convincing clinical evidence supporting the theory that this organism is a normal inhabitant of the oral cavity and gastro-intestinal tract of man.

3. There is much clinical and biological evidence that his micro-organism has its source outside of the human body and is capable of a dual existence; first, as a saprophyte in old soil from which it gains access to grains and grasses, and through this medium or intermediary host, so to speak, it becomes capable of infecting man and lower animals.

4. In order for infection to take place, two things are necessary; first, an abrasion of the tissues; second, the fungus must in some way be brought directly in contact with this abrasion.

5. Animal-to-man infection is far more common than we have been led to believe it was by earlier investigators.

6. Human actinomycosis is not a rare disease, but a disease which is often overlooked or incorrectly diagnosed.

7. Every inflammatory swelling of chronic or sub-acute nature with persistent and recurring sinus formation should be carefully investigated for this disease.

8. A negative smear, on first examination, does not rule out infection, as the fungus, in the presence of mixed infection, is often very difficult to find.

9. The disease should always be kept in mind in every case of atypical pulmonary tuberculosis and should be looked for in cases suffering with chronic purulent bronchitis or bronchiectasis.

10. Early treatment of superficial lesions are highly successful. Internal infections are extremely fatal and hopeless. [E. H. R.]

THE MANAGEMENT OF ACUTE CRANIAL INJURIES BY THE EARLY, EXACT DETERMINATION OF INTRACRANIAL PRESSURE, AND ITS RELIEF BY LUMBAR DRAINAGE.

JACKSON, HARRY (*Surgery, Gynecology and Obstetrics*, April, 1922), writes as follows:

1. In most acute injuries of the brain, the cerebrospinal fluid pressure is a fair index as to the severity of the lesion. Dependable prognosis can be made by any increase or decrease of this pressure.

2. A new clinical classification of injuries of the brain based upon cerebrospinal fluid pressure alone, as shown by the mercury manometer, is superior to the accepted classification of concussion, contusion, and compression.

3. The pathogenesis of acute injuries of the brain demonstrates that the principal effect of the oedema of the brain and haemorrhage is to interfere with the absorption of cerebrospinal fluid by the usual paths; this sets up a vicious circle, causing further pressure on the brain by the accumulating fluid in the basal cisterns below the tentorium cerebelli, and in the lateral ventricles, which presses the brain upward against the dura and produces cortical anaemia. The cortical anaemia, if unrelieved, quickly leads to gliosis, causing lasting changes in

the character, disposition, and mentality of the patient, if he recovers from the brain injury.

4. The relief of the increased pressure on the brain and the re-establishment of the normal path of absorption of the cerebrospinal fluid can be obtained by repeated lumbar drainage, which in acute injury cases is absolutely without danger.

5. Lumbar drainage is superior to sub-temporal decompression in relieving pressure below the tentorium cerebelli, and has the further advantage that it leaves no mutilating skull defect. The use of concentrated salt solutions intravenously lowers cerebrospinal tension but does not remove blood.

[E. H. R.]

ANOMALOUS ABDOMINAL MEMBRANES.

TAYLOR, ALFRED S. (*Annals of Surgery*, May, 1922), presents a 60-page article on this subject, representing his experience with 49 cases. The article is concise and well presented. The following summary is appended:

1. Anomalous membranes are present in from 15 to 20 per cent. of new-born infants.

2. They result from atypical peritoneal fusion during fetal life. Many of them are probably modified by later pathological changes due to continued traction, irritation, or low-grade inflammation.

3. They occur in the hepato-duodenal region, at the duodeno-jejunal angle, and about the caecum, ascending colon, hepatic flexure and beginning transverse colon.

4. Two or more of these regions are involved in the majority of individual cases. Groups of cases illustrating the results of treatment of the membranes found in the individual locations have been published by various men. Hepato-duodenal group by *Harris*; duodeno-jejunal groups by *Kellogg*; and pericolic group (Jackson's membrane) by *Jackson*, but sufficient emphasis seems not to have been put upon the fact that two or more of these lesions exist in the majority of individuals who fall within the large group.

5. They cause mechanical disturbances, fixation, angulation, compression and torsion of the digestive tract, resulting in partial, continuous and often increasing obstruction. This, in turn, frequently causes distention proximal to the obstruction.

6. Symptoms result when the obstruction becomes greater than the peristaltic efficiency can easily overcome. This balance may be gradually lost over a long period of time, with resulting slowly increasing symptomatology. It may be suddenly lost as the result of a prostrating injury or illness, the obstruction remaining constant while the viscous, becoming atonic, is no longer competent to overcome it. Sometimes the viscous regains its relative power and the symptoms improve. Often the viscous can never overcome the handicap and symptoms are continuous and progressive.

7. For a long time it was thought that these cases developed symptomatology only after twenty years or more of age. The investigations of *Kerley* in infants and children suffering from malnutrition, cyclic vomiting, recurrent acidosis, etc., show that abdominal examination and studies of the barium gastro-intestinal series give precisely the same findings as do the older cases in which operation has demonstrated the lesions, and caused cure in a high percentage of cases. This would indicate that symptoms appear in definite form at any period of life when the balance of peristaltic efficiency against the partial obstruction is lost.

8. The symptomatology consists of digestive disturbances previously described; general nutritional

disturbances; nervous debility, usually termed neurasthenia (and occasional mild psychosis). At some period the appendix is likely to become tender to pressure, is assumed to cause the symptomatology by "reflex action," whatever that may be, and is removed, with failure to cause improvement.

9. There are usually tender spots in the mid epigastrium, over the appendix, over caecum and ascending colon, and over the duodeno-jejunal angle, depending upon the presence of the various lesions. There is varying dilation and ptosis of the stomach, and varying dilation of caecum and ascending colon.

In marked obstruction at the duodeno-jejunal angle, the dilated duodenum can be made out.

10. Examination of gastric contents and stools gives no evidence of value, as a rule.

11. The most important element of evidence is found in the barium gastro-intestinal series. It must be a good series, with sufficiently frequent plates. The plates must be read by one experienced in these cases. It is common to receive typewritten reports that the plates are "negative," or that the digestive tract is "normal," when inspection of the plates shows characteristic evidence to be on the plates. Fluoroscopy should be done by one experienced in these cases, especially to determine the presence of obstruction at the duodeno-jejunal angle, indicated by marked distention of dependent duodenum with writhing and rushing of the contents back and forth. The pictures are not quite so conclusive, and on the operating table the duodenum may be empty and the condition not so obvious.

The plates are likely to show:

Hepato-duodenal Membrane: The stomach dilated, posed, with varying peristaltic activity. With or without retention. The apex of duodenum fixed high, sharply angulated and showing little mobility. The cap is often deformed but not in the way characteristic of ulcer. The second part of duodenum is likely to be compressed and narrowed.

Duodeno-jejunal Angle Obstruction: Dependent duodenum, if dilated, may or may not show definitely on the plates.

Pericolic Membrane: The hepatic flexure shows high fixation (often near the duodenal apex), angulation, and often transverse colon descends in contact with ascending colon. Caecum and ascending colon are dilated, ascending colon often showing constriction at about its middle. Appendix, if still present, usually retains the barium for long periods. Ileocaecal valve is often incompetent.

12. Treatment: (a) Prolonged medical. (b) Surgical. Best incision is "transverse right rectus," as it gives best exposure of the whole field, and post-operative adhesions are in least troublesome situation. (c) Post-operative. Abdominal massage. Medical supervision of diet and general hygiene, etc.

[E. H. R.]

ACUTE HEMATOGENOUS OSTEOMYELITIS.

STARR, C. L. (*Archives of Surgery*, May, 1922), differentiates between acute hematogenous osteomyelitis and the sub-acute and chronic form. He is in the habit of employing two or three drill holes into the bone instead of chiseling definitely through the cortex in the medulla. In many cases this is sufficient to produce ample drainage. In no case does he purposely open the medullary canal at first, and he believes that the old treatment of previously opening in the medullary canal for two or three inches up the shaft is, in the light of his experience, a pernicious one. The article is a distinct contribution.

[E. H. R.]

EPITHELIOMA OF THE GENITO-URINARY ORGANS.

BROWERS, A. C. (*Annals of Surgery*, May, 1922), taking information from 173 cases representing 23.65 per cent. of 2000 cases of general epithelioma observed in the Mayo clinic from May 1, 1904, to July 24, 1915, furnishes a statistical report upon the incidence of this condition in the various parts of the genito-urinary tract. He gives 24 pages of tabulated and charted results. [E. H. R.]

THE PRESENT STATE OF OPERATIVE OBSTETRICS REFERRING TO THE ABUSE OF CAESAREAN SECTION.

POLAK, J. O., and BECK, A. C. (*Surgery, Gynecology and Obstetrics*, May, 1922), state that surgical intervention is being too freely employed to terminate labor, and furthermore that the results for mother and child from such interference (oftentimes undicated) with the physiological processes of labor do not justify their employment.

That the adoption of the principle and practice of aseptic intelligent expectancy in labor, when the factors of labor are known to be normal, or approximate the normal, is still the safest method of delivery, not only for the mother, but for the foetus.

That there is a high morbidity even in the clean caesarean section, very much higher, in fact, than is common in operations for pelvic tumors, such as fibromyomata and ovarian cysts. This is due to the presence of infective bacteria in the cavity of the puerperal uterus, which migrate from the vagina to the interior of the uterus, through the open cervix.

That even in expert hands there is a definite maternal risk from caesarean section, greater than is generally known. Our mortality studies show that this ranges from 2.9 per cent. to 14 per cent., depending on the time in labor at which operation is done, after rupture of the membranes and on the amount of vaginal invasion present.

And finally, in view of these facts, we feel that every pregnant woman should have greater prenatal study and care than is commonly given her, so that complicating conditions may be recognized, prevented, or corrected, before labor, and where this is not possible, the knowledge gained from this study will permit the obstetrician to conduct the labor in such an intelligent and aseptic manner, as to minimize the dangers from abdominal delivery. [E. H. R.]

HYPEREMISES GRAVIDARUM.

LADDOCK, C. E. (*Surgery, Gynecology and Obstetrics*, May, 1922), has recently treated several cases of the pernicious vomiting of pregnancy by use of the duodenal tube, thus resting the stomach, and giving the patient nourishment during this critical period. He suggests that this may be a means of saving a certain number of desperate cases, and can easily be used in place of jejunostomy, which has been resorted to by several surgeons recently in the more desperate type of case. The report is a suggestive and valuable one. [E. H. R.]

CONGENITAL MEGACOLON IN ADULT.

FOWLER, W. F., DAVIDSON, S. C., and MELLON, R. R. (*Surgery, Gynecology and Obstetrics*, May, 1922), write as follows:

1. The so-called idiopathic megacolon is relatively infrequent in childhood and rare in the adult.

2. The only congenital feature of megacolon is the redundant sigmoid.

3. The unobstructed redundant sigmoid may be nearly or quite symptomless.

4. The degree of obstruction, from whatever cause, determines the subsequent course. a. Relatively slight obstruction (the "angulation" of Delaunoy) produces a definite syndrome without dilatation or hypertrophy. b. Acute obstruction (usually vol-

vulus), either primary or superimposed upon hypertrophy, induces sudden dilatation and the desperate picture common to such obstructions. c. Chronic obstruction causes gradual dilatation and compensatory hypertrophy, the type described by Hirschsprung.

5. Kinking, or valve-like action at the rectosigmoid junction is the usual cause of obstruction. When the rectum, also, is involved, anal spasm is a likely factor.

6. The surgical treatment of megacolon aims at removal of the crippled bowel and restoration of the intestinal continuity. [E. H. R.]

DIAGNOSIS OF PULMONARY CONDITIONS IN CHILDREN.

PETERSON, JOHN W. (*Am. Jour. of Ro.*, Jan., 1922), seeks to discuss certain types of pulmonary conditions in children. The writer finds that it is almost impossible to set a standard for diagnosis in cases of pulmonary infections because of the varying results of tests applied. For example, a case will be found pathological by x-ray examination, where nothing abnormal is observed on physical examination. Then, too, it is difficult because there are numerous factors causing changes in the lungs which do not have any direct bearing on the case.

In treating the numerous types of pulmonary conditions, the writer observes:

Acute infections: Acute bronchitis causes no changes which are demonstrable by means of x-ray examination.

Bronchopneumonia: Bronchopneumonia in its acute stage is characterized by areas of consolidation; passing to the chronic stage these areas clear, but there is a very extensive fibroid infiltration outlining the bronchial tree with thickened and dilated bronchi.

Tuberculosis: Children developing a very early tuberculosis usually die. In these cases it was noted that no changes were shown before the 6th month. In older children the enlargement of the mediastinal glands give almost positive evidence of tuberculosis.

Thymus: Cases of persistent thymus, diagnosed as such because the patients were too young to have tuberculous glands, showed marked improvement under x-ray treatment.

Rickets: Pulmonary findings in rickets usually occur within the first three years of the child's life. It is difficult to diagnose any concurrent lung infection in such cases, owing to the various conflicting changes occurring throughout the entire chest. [H. A. O.]

ROENTGENOTHERAPY OF THE THYROID.

TYLER, A. F. (*Am. Jour. of Ro.*, Jan., 1922, Vol. ix), discusses only cases of hyperthyroidism; all other types of goiter should be treated by surgical or medical means, rather than roentgenotherapy.

The three types of hyperthyroid cases, i.e., the toxic adenoma, the hyperplastic toxic goiter, and the exophthalmic goiter, respond to roentgenotherapy in the order named.

In treating patients suffering from thyroid disease, the following schedule is adopted: First, a detailed history is taken, both family and personal. Then a thorough physical examination is made, followed by an x-ray examination of all teeth and accessory sinuses and a fluoroscopic examination of the chest, together with plates in oblique position. After this a basal metabolic estimation is made; then x-ray or radium is employed, radium being used only in cases requiring hospitalization. Ambulatory patients are treated by x-ray, using 10½ inch spark gap, 6 mm. of aluminum and one thickness of sole leather, 8 inch anode skin distance, 6 ma. of current for 15 minutes over each area, treating three areas, one over each lobe and one over the thymus region. This dosage administered three times, four weeks elaps-

ing between each treatment, is usually all the patient needs.

The advantages of roentgenotherapy for toxic goiter over other treatments are:

1. There is no surgical shock, hence the mortality is very low.
2. It is successful where surgery fails.
3. It can be employed in inoperable cases.

[H. A. O.]

A REVIEW AND CLASSIFICATION OF BONE SARCOMAS.

EWING, JAMES (*Archives of Surgery*, May, 1922), presents a most thorough and learned treatise upon this still obscure subject. He describes the various varieties according to his own classification, which is included in the text. The text is well illustrated by photographs and microphotographs and the following general conclusions are reached:

1. It has been shown by physical computation, histologic changes in the tumor tissues, and clinical results, that it is possible to deliver an effective dosage of roentgen ray or radium to all parts of many osteogenic sarcomas where the tumors are accessible from all sides.

2. The histologic changes demonstrate a slowing of the rate of growth of the tumor cells, by which they are induced to lay down calcific material, or dense hyaline stroma, or bone. With vascular and cellular tumors, hemorrhage and necrosis may be produced.

3. Cellular tumors without much intercellular stroma may undergo complete resolution and disappear.

4. Tumors producing much intercellular material can probably not be made to disappear by present technic with physical agents. The most that can be hoped for such tumors is the sclerosis or ossification of the tumor tissue with cessation of growth.

5. The majority of true osteogenic sarcomas under radiation, while suffering retardation of growth, prove fatal from the usual metastases. It may be said that they would do so under any circumstances; but the possibility that prompt amputation might save some patients may be considered by many as a bar to conservative treatment. On the other hand, the long survival of certain cases heavily radiated and later coming to amputation strongly suggests that effective radiation distinctly postpones metastases.

6. The technic of employing roentgen ray and radium in osteogenic sarcoma can be made much more efficient by the proper selection of cases, by more careful study of the exact anatomic condition to be dealt with, adapting the agents to the conditions as found, and by a judicious combination with surgery.

It is obvious that the problems here involved are of a major character and demand the most intelligent cooperation of surgeon, radiologist and pathologist. From results already obtained, I am convinced that large rewards await the resourceful worker, by using all the means now at his disposal, in reducing the mortality from this lethal disease.

[E. H. R.]

FRACTURE-DISLOCATION OF THE SPINE TREATED BY FUSION.

HIBBS, R. A. (*Archives of Surgery*, May, 1922), presents an article well illustrated with x ray plates of this condition and makes the following statements in conclusion:

It is evident from the study of these cases that:

1. Many fracture-dislocations of the spine are not recognized.
2. They occur with greatest frequency in the lumbar spine; and the fifth lumbar vertebra is the one most often injured.

3. Those which take place in childhood may not cause symptoms until adult life, when the completed ossification of the vertebrae destroys their capacity for accommodation to altered shape and position.

4. The symptoms are caused by the mobility of these altered joints and ununited fractures. Elimination of motion is essential to complete and permanent relief.

5. Fusion of the articulating bones is a means to that end. It has been accomplished by the operation herein described, with complete relief in every case.

[E. H. R.]

CARCINOMA OF THE LUNG.

BARRON, M. (*Archives of Surgery*, May, 1922), reports on thirteen cases studied at necropsy in relation to its incidence, pathology, and relative importance, and he makes the following remarks in conclusion:

1. Carcinoma of the lung is a rare disease; but its rarity is exaggerated by the failure to recognize many of those cases that do occur. It is only at necropsy that many are revealed.

2. Carcinoma of the lung may be diagnosed clinically. However, a diagnosis is possible only when careful and detailed histories are taken and accurate physical examinations are made. Laboratory and roentgenologic studies may also be helpful. All facts obtained must be carefully correlated. Statistics show that complete examination of the patients have, in the hands of certain practitioners, resulted in correct clinical diagnosis in from 80 to 95 per cent. of the cases.

3. This disease is apparently increasing in frequency, especially during the past few years. Chronic inflammations, such as tuberculosis, are possible factors in the etiology of the disease. The last great influenza epidemic is perhaps another factor. The average incidence has been about two per 1000 necropsies. In our series, during the past few years the increase has been about fourfold. The disease has formed about two per cent. of the cases of cancer encountered at the postmortem studies.

4. Most pulmonary carcinomas develop from the bronchial epithelium. Some originate from the bronchial mucous glands, and only a few arise from the alveolar epithelial cells.

5. Epithelial metaplasia is relatively common in bronchial mucous membranes. This may explain the origin of the comparatively large number of squamous-cell carcinomas in this region.

6. Metastases are common in this disease, and often are numerous. The frequency of metastases to the brain, suprarenals and thyroid is very striking.

7. Pain in the chest, cough and dyspnea occur early. Bloody sputum and asymmetry of the chest are important findings in these cases. Laboratory procedures and roentgenologic studies have thus far not proved of very great assistance in the differential diagnosis.

8. Bronchiectasis is an important complication, especially since it may give misleading physical and roentgenologic findings during the course of the disease.

9. The study of the thirteen cases reported in this paper shows the importance of assuming a new attitude toward this disease with reference to its prevalence and diagnosability. The two cases encountered at the University Hospital during the past year were both recognized clinically; but ten of the remaining eleven of this series were not diagnosed correctly. This fact points strongly to the necessity of greater familiarity with the signs, symptoms and pathology of the disease. [E. H. R.]

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HOT WEATHER DANGER TO INFANTS.

WITH the exception of the first two years of life, the summer is the season of lowest mortality and a minimum of disease; but for the infant these months offer the greatest risk and a mortality far higher than at any other time of the year, due entirely to the incidence of acute gastro-intestinal disease. The "Mortality Statistics" of the United States Government show the general tendency for the total death rate in the summer months to be about half that in winter, while the infant diarrheal deaths in August reach three or four times the winter level.

Many of the factors which determine the high summer infant mortality are known, and a further study of mortality statistics shows that the application of our knowledge regarding these factors during the past two decades has resulted in the saving of many infant lives. In 1900 the figures for the total registration area of the United States show an August mortality more than thirteen times that of January. In 1910 this difference had fallen to about nine times, in 1915 well below six times, and in 1920 to about three and one-half times. This last difference is merely an indication of the possibilities still before us. From these figures it is evident that summer diarrhea is to a large degree preventable, and as the agencies carrying

out these preventive measures gradually increase their scope and influence, we look confidently toward an increasing reduction in the mortality and morbidity figures during the months of excessive heat.

Preventive medicine is taking a place of increasing importance in the activities of the general practitioner, and in no sphere can this activity be fostered to greater advantage during the months immediately before us than in the prevention of disease in infants. It is with these considerations in mind that we are reviewing the factors which are well known to play a part in the production of our high infant mortality, hoping that greater interest may be aroused in and further attention paid to these apparently minor considerations, when the possibilities within our reach by so doing are fully appreciated.

The factor longest recognized and having received the greatest attention in the past, is that of proper milk supply. The artificially fed infant has always been the one to suffer most; not primarily because of the inherent difference in the constitution of cow milk as opposed to human milk, but because of the difficulties attendant upon procuring a clean milk (*i.e.*, milk of low bacterial count) during the hot weather. Very great progress has been made in this country along this line, and much of the reduction in our mortality is due to this one factor alone. This, however, has probably made us too confident about our milk supply, and allowed us to overlook possible opportunities for the development of a dangerous degree of bacterial growth in even the best grades of cow milk. How often do we inquire regarding the length of time the milk stands at the back door on warm summer mornings before it is taken in, made up into the formula and placed on the ice? Proper methods of collection, storage, and delivery, can do a great deal toward providing a suitable infant food, but all of these together can not insure against the occasional administration of unsuitable milk. We, therefore, strongly advocate boiling all formulas made for infant consumption during the hot weather, even though the best milk is procurable and all other precautions can be taken. The milk supply is the greatest source of danger, but the importance of avoiding infection from other sources should be mentioned in passing. It should not be forgotten that anything that enters the infant's mouth is a possible carrier of infection.

In recent years, however, additional causes have been found to have a bearing upon the incidence of gastro-intestinal disturbances in hot weather. The infant's capacity for heat regulation, that is, the adjustment between heat production and heat loss has been shown to be important. The two factors known to influence heat production are muscular activity and food intake. The first of these factors is not under

our control in the case of infants, and no attempt should be made to limit muscular activity; but we can regulate food intake, and it is a safe precaution to lower the caloric value of the food given on the very hot days. This reduction may best be made in the artificially fed infant by the substitution of water for part of the milk in the formula, and in the breast-fed by giving a little boiled water before nursings, for the water requirements are greatly increased, water being the vehicle of heat elimination.

McClure and Sauer have studied the question of heat elimination and have shown the important influence which clothing has upon conduction, radiation, and evaporation at the various temperatures. Sauer also has shown how nearly the indoor costume of the average infant in summer approximates that in winter. They advocate the use of less and more permeable clothing, and more frequent baths as means of facilitating heat loss. The possibilities of preventing gastro-intestinal upsets by careful attention to such details becomes more evident when we consider the observations of Helmholz, that infants can tolerate temperatures decidedly above those usually considered harmful without showing any bad effects. He concludes that "it is a matter of improper adjustment of the individual to its surrounding temperature, rather than the height of temperature, that helps to swell the total gastro-intestinal deaths during the summer." The height of the temperature is usually not under our control, but we can materially assist in making a proper adjustment to existing conditions possible.

Exposure of an infant to too intense and prolonged sunlight is also a possible means of upsetting the heat regulating mechanism. In giving infants sun baths, judgment must be shown on the very hot days as to length of exposure and the conditions under which it is made, but we believe that the tendency is to provide far too little, rather than too much sunlight, most infants getting through the summer without even acquiring a healthy tan. Stripping an infant for a sun bath and placing him where there is a moderate circulation of air, will so facilitate heat loss that the temperature will not be raised by a moderately hot sun. On the other hand, this heliotherapy is being valued more and more as a prophylactic and therapeutic agent for a variety of conditions common in infancy. It has long been used in the treatment of bone and joint tuberculosis. More recently, however, its intensive utilization in cases of bronchial gland and lung tuberculosis has very materially altered the prognosis which we now give when such early infections are encountered. The non-tuberculous infections of these parts are also benefited by such treatment. Recently Hess and his co-workers have shown that sunlight alone can have a curative effect upon rickets in infants. They have also

demonstrated, as did Powers and Park and their co-workers, that proper exposure to the sun's rays will prevent the development of rickets in rats even on a very poor diet. Rickets is a very widespread and serious disease in this part of the country, and yet it is largely preventable. Proper education of mothers as to the value of the sun's rays will go a long way in reducing its incidence. As a therapeutic agent in the treatment of certain skin conditions common in infancy, sunlight is also of known value; and the stimulus which it affords to the sluggish appetite is often surprising. The underlying factor in all these conditions is not well understood, but the effect in all is probably dependent upon a stimulation of general metabolism.

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Miscellany.

THE GORGAS MEMORIAL.

At the last annual meeting of the Massachusetts Medical Society, Dr. F. B. Lund spoke of the life, character and achievements of General Gorgas, saying in part:

"Out of gratitude for his work in the Republic of Panama, the President of the Republic, Bellisario Poras, has brought it about that the Republic of Panama has appropriated money and land to build in the City of Panama, at the cross-roads of the world, a building to be called 'The Gorgas Memorial Institute of Tropical and Preventive Medicine.' In that building the great work to which General Gorgas devoted his life and the resources of the United States Army, to study and prevent and cure tropical diseases, is to be carried on. The location of the Institute in Panama is ideal, and it will serve as a base from which expeditions will be sent out. Then there is a large hospital close by, the Santo Tomas Hospital, the clinical facilities of which will be at the disposal of the Institute. It is to be an international affair, and the director of this Institute is our own Dr. Strong, whose work in sanitation in all parts of the world has made us so proud of him. This Institute is going to afford a tremendous opportunity for post-graduate study in tropical diseases and will be available to students from our own Harvard Medical School, as well as to students of all other medical schools in this

country. It is going to require an endowment of six million dollars, and there is going to be a campaign to raise this fund as an endowment, not only from the people of America, but from the people of South American countries, and I don't know whether it will be taken up in Europe or not. This money is going to be spent in a way where it will do more good than can be imagined. It is an unselfish project and its scope is international; the doctors should give all they can, but the whole burden should not be placed on the medical profession, but on the public as well. Physicians should be made acquainted with this great humanitarian enterprise, the biggest conception of its kind that I know of."

Dr. R. P. Strong followed Dr. Lund, saying, in part: "It has been suggested that I supplement Dr. Lund's remarks. This Institute, as Dr. Lund intimated, was regularly incorporated under the laws of Delaware last October; and this action was taken following the formal knowledge of the order of the Government of Panama, made through its President, Dr. Poras, to provide a suitable site and a proper memorial building in Panama. Dr. Poras was a devoted friend and admirer of General Gorgas and he felt that this recognition of General Gorgas' services was particularly appropriate. I have just returned from my fourth visit to the Canal Zone, and I have come back impressed more than ever before with the fact that the Canal and the Canal Zone, as they stand today, constitute one of the greatest monuments to sanitation ever created anywhere in the world. The canal really constitutes a wonderful epochal landmark in the history of human progress. General Gorgas was a man who during his lifetime was famous for his achievements in sanitation and science, and he did more to show the world the importance of medical knowledge in relation to human progress than anyone else. It was particularly due to his labors in Panama and Cuba and South America that American sanitation is today known and its value recognized throughout the civilized world.

"Now, a word about the scope of the organization. It has been decided to establish first divisions of bacteriology, pathology, protozoology, helminthology, biochemistry, entomology, plant pathology and animal diseases; and these departments will be organized with laboratories for research work, particularly in connection with the study of the mode of spread of the most important infectious diseases of man and animals. There will be close coöperation between the Institute and the Ancon Hospital and the Leprosarium. In addition to the above subjects, which are regarded as fundamental components of the work of the Institute, tropical botany and the biological effect of sunlight will also receive attention. Particular attention will also be paid to the study of economic problems in connection with the control of animal

and plant diseases. Provision will also be made for the instruction of a limited number of students. The courses of instruction will be designed especially for those who have had laboratory training before. A limited number of qualified research workers will also be received. The privileges of the Institute will be extended and an opportunity made to attract investigators from scientific institutions in different parts of the world to carry on research work, both in the Institute and by expeditions into the neighboring republics of the tropics.

"To summarize briefly—The President of one of the smaller South American republics, a country whose finances are already overtaxed, has made an offer to provide a memorial to an American, to erect a memorial institute or monument which will really be one to American medicine and American sanitation. Now does it not become the duty of the American people to provide a suitable endowment fund with which to carry on the work of this Institute? It seems to me that it is the duty of every one of us to bring about the realization of this project as soon as possible, and, as Dr. Lund said, the burden should not be borne by the medical profession alone, the contributions should be made by the American people, but I think the doctors of Massachusetts, when asked by laymen, should be able to tell the facts about this great enterprise."

BUSINESS PRINCIPLES APPLIED TO THE MANAGEMENT OF WELFARE AGENCIES BRING INCREASED RETURNS.

The application of modern business principles to welfare agencies, and the increased returns on the funds contributed effected thereby, are described in a report just made public by the U. S. Department of Labor through the Children's Bureau. This report, entitled "Office Administration for Organizations Supervising the Health of Mothers, Infants, and Children of Preschool Age," is the outgrowth of requests for advice which came to the Children's Bureau from organizations in various cities. It embodies the experience of members of the staff whose services were loaned for studies and consultations, and the results of a study of methods used by 200 nursing agencies in both large and small communities. Although the report is directed especially toward the needs of agencies supervising the health of mothers and young children, certain fundamental principles set forth are applicable to the conduct of any office in the social field.

The immediate results of the reorganization of the first agency studied, which affected both the nursing staff and the office force, were: (1) a marked increase in the nurses' time available for field work, due to elimination of duplicate clerical work on their part, and to increased office clerical assistance. (2) An increase of of-

fice output, due to redistribution of duties and orderly rerouting of clerical work. (3) Increased accuracy in handling records and office detail. (4) Elimination of lost motion, with its waste of time, energy, and space, accomplished by standardizing routing duties and rearranging the office equipment. In addition to these immediate results the new system laid the foundation for orderly development and future economical administration of the association's affairs.

"It is indisputable," the report states, "that in the long run modern office management enables a society to do more work and better work than was possible at the same cost in old ways." If high standards of nursing service are to be maintained, strict requirements regarding the education, training, experience, and character of the nurse must be compensated by adequate professional salaries. The skilled nursing staff, moreover, must be supported by a skilled office force, intelligently and adequately equipped and directed.

The report is not intended for the larger organizations alone. It is not unreasonable to suppose, it states, that the waste occurring in the small public health nursing organizations throughout the nation bulks greater than the total waste of the large organizations. The office may be the desk of the one nurse who is executive and staff at one and the same time, but the application of the fundamental principles of management are nevertheless necessary to efficient service.

The report is written with full knowledge of the financial limitations which hamper many struggling societies. "The nonpaying business concern goes out of existence while the public health nursing organization usually struggles on through many lean years doing countless things plainly undesirable from the mere inability to meet expenses." It is of course on account of the limited revenues that scientific management is the more necessary to accomplish the best results with the means at hand.

Among the subjects with which the report deals are: The principles and methods of staff organization; selection and training of employees; office location and arrangement; selection of office furniture, equipment and supplies; planning case record systems; filing; financial administration; and publicity methods. It includes a bibliography, and an appendix giving details of four record systems in use by different types of nursing organizations.

ECONOMIC LOSS DUE TO POOR VISION.

The Eye Sight Conservation Council of America publishes the following facts:

The value of your eyes—the sense of sight—cannot be expressed in any terms. Next to life itself, is vision, and yet millions have defective

eyes. The great majority are unaware of impaired vision and do not know that theirs is less than a full measure of the most valued of the senses. Many others do not understand that a considerable degree of the vision they do enjoy is gained only through nerve exhausting eye strain.

Looking at this condition from a purely economic angle, one is appalled at the resulting waste of effort and the inefficiency of millions who daily contend with the handicap of faulty vision.

Recent studies show some startling results.

In the examination of more than 10,000 employees in factories and commercial houses, 53% were found with uncorrected faulty vision, 13% had defects which were corrected, making a total of 66% with defective eyes.

In one manufacturing establishment over 70% were found with eye defects.

In another plant the following startling condition was discovered:

Glasses worn and satisfactory...	8+	%
Glasses needed and ordered....	83+	%
No glasses needed.....	8+	%

As an example of inefficiency and resulting waste, 20% of the inspectors in a large factory were found to be unable to see *sufficiently well* to detect defects in the product they were inspecting. This is an intolerable situation and inexcusable when the remedy is so simple and inexpensive.

There are 42,000,000 gainfully employed in the United States—over 25,000,000 are handicapped by defective vision or eye strain.

THE EFFECT OF THE NATURE OF THE DIET ON THE DIGESTIBILITY OF BUTTER.

Arthur D. Holmes is the author of a paper published in *Science* for June 22, 1922, and gives his conclusions as follows: It is evident that dairy butter is very completely utilized by the human body. In those diets in which the accessory foods were very nearly if not entirely absorbed by the human body, butter was found to be practically completely digested. When coarser materials, particularly those which provided considerable refuse, were included in the diet it was found that butter was somewhat less completely absorbed by the body. The general conclusion to be drawn from the results of the digestion experiments is that butter eaten in conjunction with ordinary food materials is very completely digested and that for the diets studied, the nature of the diet does not produce a marked difference in the amount of butter absorbed by the human body.

NEW REGULATIONS TO RESTRICT LIQUOR BLANKS.

New regulations further limiting the use of liquor prescriptions by physicians are said to be in preparation by the Treasury. It is said they will accord with the Willis-Campbell bill prohibiting beer as a medicine and limiting the alcohol which may be prescribed to one-half pint in ten days and the number of prescriptions allowed to a physician to 100 in three months. The Treasury is understood to be considering a change in the definition of a liquor prescription to extend that classification to cover prescriptions issued for medical compounds of which alcohol is an ingredient as well as a prescription for a regular alcoholic liquor.—*Illinois Medical Journal*.

MEDICAL LITERATURE FOR RUSSIAN PHYSICIANS.

Famished Russian physicians are hungrier for modern medical literature than for bread. Dr. Henry Beeuwkes, chief of the medical division of the American Relief Administration, says that requests for English and American medical journals are constantly pouring into his office, and that these requests are as urgently pressed as the applications for food packages. In fact, in some cases more urgently.

"Any American physician who has files of medical journals for the past three years to dispose of," said Dr. Beeuwkes, "could confer no greater boon upon the medical fraternity of Russia than to turn them over to the American Relief Administration for distribution here. Many of the Russian doctors have not seen a medical journal from the outside world for years."—American Relief Administration.

FLIES.

In order to carry weight to the argument that the fly should be eliminated, the housekeeper should be told that the fly is more dangerous than the man-eating tiger. In all probability, the house-fly has caused more deaths than all wild animals. Although the subject of fly extermination has been exploited, people are not yet fully impressed with the important rôle played by the fly as a factor in the production of disease. If our eyes could see the dirt and germs on the feet of the fly we would be more deeply concerned.

ENDORSEMENT OF THE HON. LESTER H. VOLK'S RESOLUTION.—The Philadelphia Association of over seven hundred retail druggists has unanimously endorsed House Resolution No. 258.

PUBLIC HEALTH LECTURERS FOR THE YEAR 1922.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past three years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Penteadó Bill, M.D., Doctor of Public Health, Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist, Instructor in Bacteriology and Pathology, Tufts College Medical School.

Walter E. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital, Specialty: Specific Diagnosis and Treatment of Pneumonia.

William C. Woodward, M.D., Ex-Health Commissioner, City of Boston.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full time School Health Officer.

Secretaries of District Medical Societies writing to ask for these lecturers will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating unnecessary correspondence. Please address communications to the Secretary of the Committee, Annie Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

[Note: The Committee on Public Health feels that this notice may have escaped attention, for few applications have been received. Each lecturer is an authority and would present his subject in an interesting and instructive manner.]

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Address.

THE PRESIDENT'S ADDRESS AT THE ANNUAL MEETING OF THE MASSACHUSETTS TUBERCULOSIS LEAGUE.

APRIL 21, 1922, BOSTON.

By EDWARD O. OTIS, M.D., BOSTON.

Nor long ago the question was asked by one of our local associations what advantages they obtained from the League by being a member of it and contributing a portion of their Christmas Seal Sale income for its support. This is a fair question, for everyone wants to feel that he is getting his money's worth, and I shall endeavor to answer it. In all I have to say I shall assume that the League is wisely and efficiently conducted, and its income economically expended, and that it always endeavors to act for the best interests of its component parts—the local associations. Further, I may make the preliminary remark that in all organizations there must be a reciprocal relation between the parts and the whole—a giving as well as a taking. In the first place it is obvious, I think, that any undertaking with a similar object in view, whatever its character, gains strength, solidity and prestige by the union and co-ordination of its component parts, each local organization at the same time retaining its own autonomy and carrying on its own special work. By becoming, however, a member of the larger unit, in this

case the State League, there are many ways in which the local association may gain aid in its work, and in turn aid the State Organization by its influence and experience.

As you know the State Associations are members of the National Association and, in consequence, each local association becomes *de facto* a member of the great National body, one of the most efficient of its kind, it has been said, in the world. This National Association is constantly developing new methods and programs for the most effective procedures in the tuberculosis warfare, all of which, through the State League, are at the service of the local associations. The National Association offers methods of publicity, administration, field, educational and medical expert service and conducts research work. Through the State League the local bodies share the fruits of the National body as well as contribute their parts to its success. We could not, indeed, carry on the Christmas Seal Sale without the aid and direction of the National Association, for it has become such a vast undertaking that only the larger body could successfully inaugurate and finance it.

Again, a State organization can obviously take a wider view of the whole State problem of tuberculosis and better appreciate what is needed. It is in a position to suggest and advise general policies and methods for local bodies so that they may most effectively solve their own local problems and most wisely and economically spend their money. This the

League is constantly called upon to do. It is the League which represents its component organizations in legislative matters, both in safe-guarding its own special field of health work and in advocating good and opposing vicious health legislation. For example, through its representatives it advocated the light-saving law and more accommodations for non-pulmonary tuberculosis, a bill which is, I believe, now before the Legislature.

In all philanthropic movements we are dependent upon public sentiment and public good will, and this can best be obtained and crystallized by bodies which are both State and nation-wide in which the public have confidence. It is the one large State association that the public look to for information and guidance in the tuberculosis campaign. In any undertaking nowadays publicity is of utmost importance, and it is the State League which must and does do this for the State, as the National Association does it for the Nation. Although each local association has its own peculiar problems, there are certain general lines of work common to all, such as a tuberculosis survey, expert diagnostic service, tuberculosis nursing, etc., and such common service the League endeavors to provide and render effective. "None of us liveth to himself" for we all realize sooner or later that the satisfactory and satisfying life is one of service. Although the larger and better organized local associations have less need for direct service from the League than the smaller ones, and may feel that they are sufficient unto themselves, and are rather reluctant to contribute their percentage from the Seal Sale to the League, yet is it not worth while to feel that a part of their contribution is being used in the aid and support of some weak and struggling association in a community which could not obtain sufficient resources itself for work needed to be done in its midst?

Again, the office of the State League is a general clearing house for all sorts of information, appeals and complaints. Thither comes nurse, tuberculosis worker, doctor or layman, interested in some phase of tuberculosis work; all wanting information, advice or guidance in their especial problems. Furthermore, the Executive Secretaries are constantly going about the State visiting the local associations, learning from some, stimulating and advising others, and setting on their feet those who have fallen down and ceased to function. Perhaps, it is not generally known that several times a year the Executive Secretaries, of all the New England Associations, meet together to discuss general tuberculosis problems and to exchange their experiences, and such meetings are very fruitful in gaining new viewpoints and in solving many problems in State tuberculosis work.

Each secretary gains new ideas and valuable suggestions and these rebound to the benefit of the local associations.

Through its committees the League is constantly studying various phases of tuberculosis and health work, such as the standardization of surveys, the education of tuberculosis nurses, the care and provision for those suffering from non-pulmonary tuberculosis, and health legislation.

Last year the League made a small appropriation for research work in the study of tuberculosis among children under the direction of Dr. Maynard Ladd in the large Children's Clinic of the Boston Dispensary, the object being to determine the amount of tuberculous infection in children, from infancy to adult age, and the best means of preventing this infection from becoming active disease. In this connection there was a study made of excised tonsils to determine what proportions were infected with the tubercle bacillus. Already valuable data have been obtained and it is hoped that this research work may be continued if our funds will permit. As I said in the beginning I have assumed that the executive management of the League is active, efficient, intelligent, progressive, and economical with the funds entrusted to it, and of this you, the local associations, are to be the judges, for the League is your servant.

Finally, and in a brief sentence, the State League exists for the purpose of studying and promoting the best and latest methods for carrying on the anti-tuberculosis work in the State and in so doing promoting the public health.

If the League is an important instrumentality in combating tuberculosis, as I have endeavored to show, and is to be a continuing body, then it must receive adequate support and not be dependent entirely upon the more or less uncertain income from the seal sale. Why should we not seek an endowment? More than one of our local associations have received legacies, and why should not the League which is soon to be incorporated, appeal to the public for means to place it upon a solid basis? What more appealing object than the prevention of tuberculosis? Tuberculosis is, and is likely to remain for an indefinite number of years to come, a very prevalent disease. All fear it and all, directly or indirectly, have suffered from it, and all should lend a hand in its suppression.

The State, as well as the counties, are spending large sums for the care of tuberculous adults in their various sanatoria, but the tuberculous children are being neglected, and tuberculous children respond so quickly and satisfactorily to treatment. We need one or more sanatoria exclusively for children. Connecticut, for example, has two such institutions, one

on the seashore and one inland, where heliotherapy is being employed with striking success. France has for years maintained large seaside sanatoria for children and so have other European countries. I have only to refer to the admirable results obtained by Dr. Chadwick, at Westfield, to indicate the extreme value of sanatoria for children. The League, it seems to me, might well undertake a propaganda to influence public opinion in favor of greater accommodations for tuberculous children. For children suffering from bone and joint tuberculosis sea-side sanatoria have been found particularly favorable, and it is to be hoped that in making provision for non-pulmonary tuberculosis, as is now contemplated by the State, provision will be made for a sea-side institution for children suffering from non-pulmonary diseases.

An interesting incident was told me the other day of a little girl who was sent to the Connecticut sea-side sanatorium strapped to a board, suffering from spinal tuberculosis. She recovered from this, but meanwhile developed pulmonary tuberculosis. She was then transferred to the inland sanatorium where she recovered from her pulmonary affection and is now a robust, healthy girl. Such is the resiliency of childhood!

The public are beginning to realize that prevention is better than cure, and as I shall show later, this is especially true with regard to children, hence so-called preventoria are coming into existence. There is one connected with the Sharon sanatorium, and the Boston Tuberculosis Association is about to open one at the Prendergast Camp. In Toronto there is a flourishing institution of this kind, of which some of us have heard through Dr. Elliot, and a number of others elsewhere. Such preventoria are equally valuable for young adults. At St. Agathe, in the Laurentian Highlands of Canada, is such an institution for young women of depressed physical condition. Who can estimate the value of such institutions and the number of active cases of tuberculosis prevented by this timely aid? The economic saving to the community of such preventoria is obvious. It is so much cheaper to prevent the child and young woman from developing tuberculosis than to try to cure them after the disease has become manifest. Here is another object for a League propaganda — the establishment of preventoria in the State, and I am sure they will come in the near future.

Medical Social Service, introduced some years ago through the genius of Dr. Richard Cabot, has abundantly demonstrated its usefulness, and has become an established institution in the best hospitals and dispensaries. Anyone who has worked in a clinic with an accomplished, wise, and sympathetic social worker, knows how inval-

uable her services are in dealing with tuberculosis. She is, indeed, a ministering angel. Some State sanatoria include in their personnel such a social worker, and we should in ours, which, I believe, at the present time is not the case. The psychic treatment of a tuberculous individual is often quite as important as the medical, but the medical attendant has not the time and, perhaps, not the talent or experience to minister to a mind distressed or worried. Unless the mind is at rest, and free from anxiety, the physical condition will not only not respond to treatment, but will retrograde, as Dr. Waters, of the Loomis Sanatorium, has very cleverly shown by the comparison of x-ray plates of a tuberculous patient, taken at varying intervals, which showed evidence of advance of the disease when the patient had been worrying over some unfavorable news from home. A word of sympathy, a bit of comfort, a sympathetic attention to the story of an overburdened heart, from the social worker may accomplish more for a lonely, discouraged, worried sanatorium patient than any medical treatment can do. In this materialistic age we, and I include the doctor, are too apt to "mind the things of the flesh" and ignore "the things of the spirit." It is often easier to treat a bodily pain than to soothe a troubled mind, but to remedy the latter may result both in health and happiness. "It should be the special business of the social worker," says Dr. Cabot, in referring to tuberculosis, "to point out that not for economic, but for spiritual reasons, it is a dangerous experiment to take a man away from his work and put him on his back in a steamer chair for months at a time."

As you are aware, much has been said and written regarding the discouraging results of sanatorium treatment. At first we thought the tuberculosis problem was well on the way to its solution, when the sanatoria came into existence and patients were discharged "cured," as we then labeled them. Time and experience, however, have taught us that sanatoria effect but little the incidence or prevalence of tuberculosis, and the best we can say now, regarding a patient who seems to have recovered, is that his disease is "arrested." Even of these "arrested" cases a certain proportion relapse and still more of the "improved" cases; and with every relapse the money expended in the treatment is wasted. From all this it is apparent that more after-care and supervision is needed. For each patient discharged from the sanatorium there should be someone whose definite duty it is to keep him under supervision. If not otherwise provided by the State, why could not the local associations undertake the responsibility of following up those patients who belong to their community? The problem of obtaining work for the arrested case of tu-

berculosis is a very difficult one and, as you know, many plans have been suggested but none so far have proved practical upon a self-supporting basis. At present not a few industrial establishments seem willing to take for part time, or for light jobs, these arrested cases. The Boston Tuberculosis Association undertakes to find such employment for these persons, and other associations might well follow their example. We must recognize the fact that when the tuberculous individual is discharged from the sanatorium the work is but half done. He must be followed up, by visiting nurse, social worker, or some competent person, and if able to work effort must be made to obtain such suitable employment for him as will not jeopardize or undo the gain or arrest he has obtained from his sanatorium treatment. Otherwise, the money spent for such treatment is likely to be an economic loss.

Some years ago President Eliot, in an address on "The Coming Changes in the Medical Profession," said that the probability was that the greater part of the work of medical men was, hereafter, to be done in preventive medicine. We may consider this a prophecy of perfection rather than a realizable attainment, for we shall always need the individual services of the physician for our individual need, in the chances and changes of this mortal life. There has been, however, an increasing and pronounced appreciation, on the part of the public, and of the medical profession as well, of the supreme value of preventive medicine or, to use a better term, of the prevention of disease. As Dr. Robertson, the late Commissioner of Health of Chicago, says, preventive medicine is the intelligent demand of a now intelligent public. The presumably well are now seeking, or being asked to have a medical examination, to see if they are really as well as they think they are, and are in physical condition for their self-imposed or directed duties, and if their habits of life are consistent with continued well-being. We have, for example, the "Life Extension Institute," and the so-called "Health Clinics," a notable example of which is now conducted at the Boston Dispensary. Expectant mothers are kept under observation to prevent certain disasters incident to that condition. We require vaccination to prevent smallpox, and advocate the Schick test for children, and the toxin-antitoxin injection, if this test is positive, to prevent diphtheria. We employ the anti-typhoid vaccine to prevent typhoid fever. And experimental work is now being done to discover a vaccine to prevent pneumonia. The American Society for the Control of Cancer urges frequent physical examinations in order to detect malignancy in its earliest stages and thus prevent its development into a hopeless condition. It is becoming increasingly the custom in large

industrial concerns to examine the employees when they enter the industry and periodically thereafter. We have the medical examination of school children and of academy and college students. In Massachusetts, and I know not how many other States, an examination is required, of children of 14 to 16 years of age, before they can enter an industry, in order to prevent the development of any weakness into disease. You will recall that President Roosevelt instituted periodic examination of the officer personnel of the army who were presumably well, and the present Surgeon-General of the army declares that he firmly believes in periodic examination of the civic population.

According to Dr. Haven Emerson (*Journal of the American Medical Association*, March 25, 1922, page 901), an increasing number of people attend the cardiac clinics in New York City to find out whether or not they have cardiac disease, and not how they may be cured when they have heart disease, and Dr. Emerson says that there has been set up by the Academy of Medicine, of New York, a series of examining stations where physicians examine people, who are presumably well; health clinics we should call them. There are now classes for the examination of the mental capacity of persons of various ages to prevent mental disease or regulate the mental habits of the individual. The same authority (Dr. Emerson) states that in the thirty-one tuberculosis clinics of New York City, in the last 15 years, one million people have been examined, and in the year 1921 66 per cent. of the people who went to clinics were found to be non-tuberculous, the percentage having risen from 20 per cent. to 66 per cent., a million of the population. Hence, it is evident that an increasing number are being examined to find out the condition of their lungs, not that they suspect or have symptoms of tuberculosis. When we consider all these already existing instrumentalities for preventive medicine we must confess that President Eliot's prophecy is well on the way to fulfillment.

The experience in the great war is familiar to us all, where a surprisingly large number of physical defects were discovered, hitherto unsuspected, in supposedly well young men. This experience has impressed the public. I believe, as to the prophylactic value of health examinations and health clinics, and with but little urging, I believe, the people would eagerly seek such physical examinations. One of the most important parts of such a health investigation is a thorough examination of the lungs of presumably well persons. To be sure, we as tuberculosis workers have always made prevention an important part of the campaign against the disease, but in the past we have largely confined our efforts to the prevention

of the spread of the tubercle bacillus. Should we not now make a more pronounced effort to persuade the *well* to have an examination of their lungs, and should we not join with other health organizations in the rapidly increasing movement in the prevention of disease? You will recall that in the Framingham Health Demonstration all the inhabitants were offered and urged, to have an examination of their lungs, and important results were obtained thereby in the discovery of unsuspected pulmonary disease. Why could not the clinics, now held by the experts of the State Board of Health, enlarge their functions, and offer to everybody who wishes it an examination of the lungs and urge the importance of so doing? So long as pulmonary tuberculosis still continues to be one of the most prevalent and dreaded diseases of modern times the advantage of such examinations, both to the individual and the public, is obvious. The most successful means of preventing tuberculosis is to prevent its happening. Still better it would be if the tuberculosis expert should join with experts in other departments of medicine and hold health clinics which would include a complete physical examination. When once the public recognizes the supreme value of such health clinics, there will be no dearth of applicants.

"One thing necessary," says Dr. Wightman, of the Chicago Municipal Sanatorium, "for those who would be well is an annual physical examination. It is only by means of such examinations that the doctor is able to prevent the development of disease. The intelligent have already learned that if they go often enough to a good dentist he will prevent any serious dental troubles from developing. The same class of people will soon know that if they go often enough to a good doctor (or to a health clinic) any serious physical trouble will be prevented from developing." We must persuade the thoughtless majority, who consult the physician only when they have an ache, or a pain, or feel ill, to recognize also the value of periodic physical examinations to prevent the pain or illness, and to have their lungs examined to prevent tuberculosis.

Original Articles.

THE MANAGEMENT OF CANCER OF THE BLADDER.*

By GEORGE GILBERT SMITH, M.D., F.A.C.S., BOSTON.

THE management of cancer of the bladder is rather a complex problem, inasmuch as the methods of treatment vary widely according to the type of growth. In discussing this ques-

tion, it seems to be necessary to start with a brief review of the pathology of vesical neoplasm, and to attempt to separate the lesions into classes more or less according to the kind of treatment which each class requires.

For the point of view of the pathologist, let us turn to the 1922 edition of Ewing's book on "Neoplastic Diseases" (p. 860 *et seq.*). There we find the epithelial tumors of the bladder classified as follows: Papilloma—fibrous; benign; malignant. Carcinoma—adenoid (rare); diffuse. We are justified in including the papillomata among cancers of the bladder, for all papillomata are potentially malignant. They consist of a connective tissue framework, more or less branched, covered with a layer of cuboidal epithelial cells. It would be impossible to say whether any particular papilloma was malignant unless one could examine every bit of it microscopically, for some parts may appear entirely benign, while in other areas the cells show a method of growth, a heaping up and a breaking through the basal membrane, which is characteristic of carcinoma. Ewing says that 25 per cent. become malignant; Frisch reports three cases in which the removal of a simple papilloma was followed by the development of single or multiple carcinomata. Ewing states, furthermore, that "the microscopic structure usually indicates considerable growth capacity which in other situations would always prove malignant. The clinical malignancy is also influenced by the tendency of new tumors to develop progressively in a predisposed mucosa" (pp. 861-2). This evidence should be enough to warrant the inclusion of simple papilloma in a paper on cancer of the bladder; a papilloma which shows necrosis is practically certain to be malignant.

The career of a papilloma is interesting. It may exist for years without undergoing much change, causing either no symptoms or a painless hematuria, and suddenly it may start to grow rapidly and acquire malignant characteristics. I have never seen a benign papilloma reach a size larger than perhaps two cm. from stem to tip. The larger ones have either been proved to be carcinoma by the microscope or have shown, by their recurrence as a definite cancer, that they were indeed malignant. Ewing says that 75 per cent. of all papillomata reach an urgent condition or are fatal in three years.

Malignant papillomata, or papillary carcinomata, may grow so large as to fill the bladder. Clinically they appear as round, partially necrotic tumors which bleed very easily. Although they appear solid, their tissues are as friable as a piece of blood clot. Their cells are easily transplanted to other parts of the bladder, or to the operative incision. They are attached to the bladder wall by a thick pedicle,

*Read at a meeting of the Essex North District Medical Society, May 3, 1922.

or sometimes by a broad infiltrating base. Often multiple, the smaller ones appear through the cystoscope as low, bushy growths which are attached firmly to the bladder wall, and do not wave in the current as do benign papillomata.

Malignant papillomata often become encrusted with phosphatic deposits and infected, thereby setting up a severe cystitis.

Buerger believes that of all cancers of the bladder, from 30 to 36 per cent. originate as papillomata.

Those growths which have not this origin develop directly in the bladder mucosa. They may assume a glandular form, if derived from the mucous glands of the bladder, but this type is rare. The common form is a sessile growth, very firm to the touch, sometimes covered by intact mucosa, but more often slightly ulcerated. Occasionally the ulceration is more marked with elevated, indurated margin. Some writers divide these into transitional or squamous cell cancers, but this distinction is of little practical importance.

These growths are less likely to be accompanied by infection. As they progress, they may show proliferative changes; in this stage infection is frequent. The growth extends through the bladder wall into the perivesical tissues and to the regional lymph glands. Both Ewing and Judd remark upon the slowness with which cancer of the bladder metastasizes to distant points. I have seen two cases recently in which distant metastasis occurred—once in the third lumbar vertebra, and once in a supraclavicular gland. From my own experience I would say that metastases in the spine were not at all uncommon.

By far the most important factor in the successful treatment of cancer of the bladder is early diagnosis. Unfortunately one sees a number of cases in which the diagnosis should have been made months, or even years, before. Such occurrences are a disgrace to our profession; every case of hematuria in which the bleeding is not due to an obvious cause should be cystoscoped. The omission of this simple and easily available test in a case of symptomless hematuria is as indefensible as the failure to give antitoxin in a case of diphtheria. Every case of hematuria and every case of irritable cystitis unaccounted for by obstructing prostate or by urinary tuberculosis should be suspected of cancer, especially if the patient is above 30 years of age. If the urine has a peculiarly foul odor, suggesting decayed tissues, the diagnosis can be made, almost for certain, without further examination.

Observation cystoscopy, which is today, thanks to the small calibre of the modern cystoscope, a very simple procedure, will give the diagnosis and will tell us with which type of growth we have to deal. If the bleeding is

excessive, it may be necessary to place the bladder at rest for a week or so by an indwelling catheter; if this is done, with the aid of adrenalin solution instilled into the bladder, a fair view can almost always be gained. A careful general examination should be made. Bimanual palpation of the bladder with a finger of one hand in rectum or vagina and the other hand making pressure above the pubes, will give valuable information as to the presence of induration within or about the bladder. Search should be made for glandular masses within the pelvis or upper abdomen. An x-ray of the spine is useful in certain cases. The age and general condition of the patient must be taken into consideration, and an estimate made of his probable vitality and ability to resist infection.

When, by careful study, the surgeon has discovered with what type of lesion he has to deal, he must decide upon his method of attack. There are the surgical measures of cystotomy with cauterization; permanent cystostomy, partial resection of the bladder, and total cystectomy. There are the measures possible to employ without opening the bladder, such as fulguration and the application of radium. There are various combinations of these.

Let us now turn to the treatment of the several types of growth encountered in the bladder. Simple papilloma is delightful to treat. Practically all of these, if they are really not malignant, respond readily to fulguration, or destruction by means of the high frequency spark. Through the cystoscope the electrode is pressed against the tumor and the current turned on. Bubbles of gas rise from the point of contact; the tumor for a millimeter or two about the electrode tip blanches and shrivels up. If the tumor is small, the stalk may be cut across directly; if larger, it is destroyed at several sittings. Malignant papillomata do not respond so well; if, therefore, the tumor is easily destroyed, the chances are that the mucosa at its base is not involved. The largest papilloma which I have destroyed by fulguration was the size of a small plum.

There is, as Ewing states, a predisposition on the part of the mucosa of such bladders to form papillomata. Sometimes the recurrences will be definitely malignant. It is essential, therefore, to cystoscope these cases frequently so that recurrences may be detected while small and be given appropriate treatment. I have the patients return every three months for the first year, then every six months for two more years; after that, once a year.

Let me give a few illustrative case histories: F. E. H., a traveling salesman of 46, came to me in April, 1915, with the story that six months previously he had noticed a little blood at the end of urination. This ceased almost entirely, but the week before his visit to me

the urine was bloody throughout. The force of his stream had been lessened. Cystoscopy showed a good-sized, filamentous papilloma arising from the right ureteric ridge, hiding the orifice of the ureter. This was completely destroyed by nine fulguration treatments. February 23, 1916, cystoscopy showed no recurrences. August 22, 1916, one tiny bud back of the right ureter was discovered and destroyed by fulguration. December 28, 1917, cystoscopy showed no recurrences. Since then the patient has not returned for cystoscopy, in spite of a letter asking him to do so.

G. A. D., a plumber of 34, consulted me August 20, 1919, because of hematuria which he had had constantly for one year. Cystoscopy showed a papilloma the size of a bean rising from the left ureteric region. The tumor and the mucosa from which it arose were destroyed by three fulgurations. Cystoscopy in June, 1920, showed no recurrence. January 20, 1921, a tiny bud was seen upon the left side of the trigone and was destroyed. There was not even a scar left to mark the spot where the original tumor had been.

Inasmuch as the recurrent papillomata which I have seen have usually risen from a different area than that upon which the original growth was situated, it seems reasonable to assume that they would have developed, no matter whether the tumor was excised or was destroyed by fulguration. The destruction of simple papillomata by the latter method, therefore, seems to me to be without question a better procedure than radical operation. If the tumor is bushy or necrotic, the question of treatment is a different matter. The tumor then is probably malignant; consequently there is a likelihood of involvement of the bladder mucosa at its base, and the removal or destruction of the bladder wall at this point is indicated. If the tumor is so situated that it can be excised together with the entire thickness of the underlying bladder wall, this operation should be done. If the tumor arises from the trigone or the vesical sphincter, thereby making its thorough removal very difficult, or if the patient is not in condition to stand a long operation, the bladder can be opened, the tumor destroyed by the cautery, and radium implanted in the bladder wall in such a way as to slough out the tumor-bearing area. In case any operation is contraindicated by the patient's condition, or if the tumor is a recurrence following a previous operation, so that one does not feel it advisable to operate again, one may implant bare tubes of radium emanation in the bladder wall beneath the growth by means of the operative cystoscope and a flexible, needle-pointed "drill." One or two of these tiny glass tubes, or "seeds," are deposited in the tissues and left there. Each seed should be of low potency, from one to three mc.; the beta and gamma rays given off

will destroy the tissues over an area 1.0 cm. in diameter, and at the end of a week the seed will have lost its radioactivity.

We come now to the question of treatment of the more extensive cancers of the bladder, both of the degenerated papilloma and of the sessile cancer type. It may be said at this point that when cancer of the bladder has reached a certain point, there is no method of treatment yet discovered which will avail. At the Huntington Hospital we occasionally have such advanced cases sent in for radium treatment; when the bladder feels like a cannon ball and the pelvis contains great masses of cancerous lymph glands, there is no help for the patient.

Certain cases, however, may appear to be quite advanced when the interior of the bladder is viewed through the cystoscope, and yet may be amenable to the right sort of treatment.

We may divide the more extensive cancers of the bladder into two classes, the localized and the diffuse. The former are more deeply infiltrating, more scirrhous, and slower of growth. They are less likely to be accompanied by severe cystitis. All these points are factors in influencing our selection of a course of treatment. If the localized cancer is situated high up on the lateral wall or upon the dome of the bladder, and does not appear to have penetrated the bladder wall, a wide excision is the best procedure.

C. K., a woman of 55, came to the Massachusetts General Hospital with a history of having been passing clots of blood in the urine for the preceding two weeks. Cystoscopy showed a growth on the right lateral bladder wall, including the ureteral orifice. In July, 1920, I excised a solid tumor the size of a small plum; the entire thickness of the bladder wall was removed, including the orifice of the ureter. The resected ureter was reimplanted in the bladder. As the growth appeared to involve the entire thickness of the bladder wall, the perivesical tissues upon the right were given radium treatment; 25 mg. of radium element, screened by one mm. brass and one mm. rubber, was placed at the bottom of the perivesical sinus one week after operation and left in 24 hours. The patient made a fairly good recovery and in October, 1920, felt quite well. Cystoscopy showed a mild cystitis, but no evidence of recurrence. The orifice of the implanted ureter could be seen as an oval slit which opened and closed much like a normal orifice. January 28, 1921, cystoscopy; the same findings. In March the patient began to have sharp pains in right knee, thigh and lower back. Pelvic examination showed no induration and no glandular masses. The back pains became worse; they were evidently due to metastasis. The patient rapidly failed, and died, about one year after operation, with metastasis in the lung.

A good many of these localized cancers are situated close to the prostate or down in the funnel of the bladder neck, so that excision, and particularly closure of the bladder wall to fill the defect, is almost impossible. In such cases the implantation of radium gives the best results.

As this method of treatment is fairly new, and is, moreover, one in which I have been extremely interested, I shall digress from the main theme for a few moments to go into the question of radium treatment in some detail.

From our experience at the Huntington Hospital we have come to the opinion which I think is now held by most genito-urinary surgeons, that it is next to useless to treat infiltrating cancer of the bladder by radium introduced into the bladder and applied, more or less accurately, to the growth. The cancer, to be destroyed, must be sloughed out, and the best way to accomplish this is by means of radium implanted directly into the tumor. The means of radiation may consist of needles containing radium salt, in which case a number of small needles, of 5 mg. each, are preferable to fewer large ones; or it may consist of little glass tubes containing radium emanation. If the needles are used, they should be inserted about one cm. apart and pulled out by means of thread after 24 or 36 or even 48 hours, according to the amount of radiation desired. If the emanation tubes, or "seeds," are used, they are abandoned in the tissues. In either case the effect is substantially the same. Close to the needle or tube the tissues become completely necrotic; further away there is a zone in which the cancer cells are killed but not sloughed out. Beyond that is a zone in which infiltration with leucocytes and fibroblasts takes place, forming a barrier of dense connective tissue. The center of the growth, where the rays from the tubes cross each other in all directions, sloughs away. Around the periphery there is found a barrier of connective tissue which prevents the spread of cancer cells by way of lymphatics. The process of destruction and repair takes from two to six months, depending upon the condition of the patient and the extent of the reaction. Infection may supervene, and sometimes causes the death of the patient.

The application of this method to bladder cancer is limited to those cases in which the area to be radiated does not exceed 3 or 4 cm. in diameter; if larger growths are radiated, the extensive necrosis is likely to prove more than the patient can stand.

Of the earlier cases which we treated by this method, several died in from six weeks to three months after operation, and in one case eight months later, apparently from the toxic absorption or from renal infection consequent upon the bladder condition. In half a dozen cases, about half of the number treated in this way,

excellent results were obtained. One case will illustrate this class.

A. Y., 65, carpenter, seen August 5, 1920. Complaint: Hematuria for eight months. Cystoscopy showed an extensive ulcerative growth, with elevated edges and necrotic center, on left lateral wall of bladder, not much influenced by application of 450 mc. of radium intravesically. Operation on February 10, 1921. Cystotomy; slightly ulcerated growth, about 3 cm. in diameter, found in left lateral wall of bladder. Induration seems to extend through bladder wall and is palpable by rectum. Piece excised for examination proves the diagnosis; whole tumor lightly cauterized. Twelve seeds of from 1 to 4 mc., total 32 mc., implanted in growth. Convalescence uneventful, except for epididymitis. No marked radium reaction. April 28, 1921, urine very dirty. Frequency every one or two hours. Slough which formerly covered left side of bladder has almost entirely cleaned up. June 30, 1921, patient gaining weight. Feels well. Cystoscopy; area of tumor almost entirely healed and covered with mucosa. August 18, 1921, back at work. Nocturia once. Cystoscopy; left wall of bladder practically healed. January 19, 1922, looks well and says he is in the best of health. Last night did not have to void at all and holds urine for three hours in day time. Urine slightly hazy. Cystoscopy; bladder clean and smooth. Prostatic outline shows definite adenomatous changes but is much less red than three months ago. In base of bladder, outside of left ureter, is a shallow fossa, the bottom of which is still covered with necrotic tissue. No evidence of malignant disease. To return in three months.

As was said above, the use of this method is limited to localized carcinoma. The diffuse, superficial type must be handled differently. One possible course is to open the bladder, cauterize all tumors found on thorough search, and into the bases of as many as possible implant one or two "seeds." Following operation, the patient must be cystoscoped at least every three months, and as recurrences develop they may be treated by intravesical measures, either fulguration or radiation.

Certain cases of this type will show too great an involvement of the bladder surface for this method to be employed. In these, the very radical operation of total cystectomy may be considered.

Cystectomy is an operation which should be done, I believe, much more frequently and much earlier than is now the custom. Given an individual in whom the question of recurrence is not a question but a certainty, who has nothing to lose and all to gain, who is in excellent general condition and shows no evidence of metastases, total cystectomy is an operation well worth serious consideration. About three years ago I operated upon a young

man of 29 for tumor of the bladder. A large pedunculated growth upon the trigone was removed and several smaller ones cauterized. The pathologist reported them as papilloma, but they showed necrosis and would, I felt sure, recur. I advised cystectomy, but the patient, not unnaturally, refused. Six months ago he consulted me again for pain in his back and cystitis. His bladder was full of cancer and he had undoubtedly a metastasis in the spine. He died soon afterwards. Cystectomy would have been a long shot for him, but had he gone through successfully he would very probably have been cured.

Last August, W. H., a man of 44, was operated upon for cancer of the bladder. Within three months the growth had recurred in a different part of the bladder; it grew rapidly, and it seemed that cystectomy was the only remedy. The situation was explained to the patient, who was a very intelligent individual, and he decided to take the chance. On January 2 of this year I implanted his right ureter into the ascending colon; three weeks later the left ureter was put into the descending colon. In February the bladder was removed. No enlarged glands or extra vesical extension of the growth was found. Had it not been for a rectal tear which I made in separating prostate from rectum he would have made a perfect recovery. As it was, a fistula resulted which took two months to close. The patient left the hospital early in April with only an occasional leakage through the perineum. Before his cystectomy he passed urine by rectum every three or four hours without discomfort and will undoubtedly do as well again after his fistula is firmly healed. During the time he was under observation in the hospital he showed no sign of renal infection, and his urine contained no pus.

Judd reports several cases of total cystectomy for cancer, one of whom was alive after 12 years.

The operation, in selected cases, will unquestionably save a number of lives and will prolong others in a comfortable condition.

CONCLUSIONS.

In this paper I have endeavored to show that all tumors of the bladder (barring some varieties, as fibromata) are potentially, if not actually, malignant; that early diagnosis by means of the cystoscope is the first requisite for successful treatment. Every misbehaving bladder should be considered guilty until it is proved innocent.

The methods of treatment consist of fulguration, radiation by means of implantation of radium, excision of the tumor, total cystectomy, or, in hopeless cases, cauterization and permanent suprapubic drainage. The particular measure or combination of measures selected

depends upon the type of tumor which is disclosed by careful study of the case. The results of surgery in cancer of the bladder are now far from satisfactory, improvement is to be expected only through earlier diagnosis, followed by more radical treatment in some cases, in others by the intelligent use of radium.

NUTRITIONAL DISORDERS IN THE LIGHT OF RECENT INVESTIGATIONS.*

By ALFRED F. HESS, M.D., NEW YORK.

ALMOST every generation or decade has its predominant medical interest. The most active subjects of investigation during the past generation have been those relating to infection. Today nutrition and nutritional disorders have become the central theme of medical interest. It is not difficult to trace the reason for nutrition having secured a position of priority. It was the natural sequence of a series of striking and far-reaching nutritional investigations which disclosed what may be summed up in the phrase "the importance of the minimal." It is unnecessary to recall the various instances where this principle has been found to hold true, and where the current conception of energetics has been shown to be inapplicable. We may cite as examples the essential importance for the animal body of certain amino acids and of traces of iodine. The discovery of the vitamins constituted a further step in this direction, adding fresh interest, as it disclosed an entirely new group of nutritional factors of vital importance for human welfare and existence, and associated with definite and well-established clinical phenomena. The recent war also tended to direct attention to nutrition; indeed, from a medical standpoint the World War differed from previous conflicts in that faulty nutrition and not infectious diseases proved to be its crucial problem. It furnished a demonstration, convincing to all the world, of the dependence of national vigor and health on the food supply. Furthermore, for the first time, governments were compelled to call upon nutritional experts for advice and to grant their decisions priority over those of high executive and legislative bodies. It seemed in place, therefore, before studying a particular instance of faulty nutrition—rickets, the topic of the next lecture—to review critically some outstanding features suggested by recent investigations in this domain. A survey of this kind may have added value as the advance has been so feverish that there has been little time to pause and to reflect.

It is perhaps a commonplace that the most remarkable discovery in the field of nutrition

*Ottier Lecture delivered at Harvard Medical School, February 14, 1922.

within recent years has been the realization of vitamins and of their essential rôle. The time is not ripe for a discussion of the chemical nature and action of these attractive but elusive factors, but they may well serve as a text to illustrate certain points in connection with nutritional investigations. Before considering them from this point of view I should like to refer to one quality which two of the three established vitamins possess in high degree, and which is of importance in connection with their presence in our food supply—namely, their marked sensitiveness to oxidation. I hope you will pardon also a short venture into the uncharted domain which deals with the fate of the vitamins within the body—for a hypothesis relating to the antiscorbutic vitamin, suggested by its destruction in an alkaline medium.

It has been demonstrated by Professor Hopkins for vitamin A, and at the same time by myself in relation to the antiscorbutic vitamin, that these factors are readily and rapidly destroyed by oxidation.^{1, 2} For example, if three cubic centimeters of normal solution of hydrogen peroxide are added to a liter of milk, this suffices within a few hours to destroy entirely its antiscorbutic vitamin. Similar destruction results if orange juice or tomato juice is subjected to nascent oxygen. This peculiarity is responsible probably for the loss of potency of antiscorbutic foodstuffs through "aging"—a mere form of oxidation. It accounts also for the loss in the antiscorbutic factor which can be brought about by shaking fluids such as tomato juice. Another application of this principle furnished the explanation of why some found dry milk to retain its antiscorbutic potency, whereas others found it almost devoid of this factor. The milk which was tested in the former instance had been dried by the drum roller process, in the course of which it is subjected to but slight oxidation, whereas the milk which lost its potency had been dried after having been transformed into a fine spray and thus thoroughly oxidized. More recent experiments have shown that vitamin destruction by oxidation can be hastened by means of an addition of small quantities of copper to a foodstuff—by a catalytic reaction. This may be illustrated by the following experiment: Milk pasteurized in a glass container did not induce scurvy when fed to guinea pigs in 100 c.c. per capita amounts, whereas another lot of the same milk, which had been pasteurized in a copper vessel—and contained 1.4 parts of copper per million—induced scurvy when fed in the same amounts. That the disorder was scurvy was evidenced by the prompt curative action of orange juice. When we consider the wide distribution of catalytic substances in food it would seem that this factor may at times diminish the potency of this vita-

mine. The broadest application of catalytic action is probably in connection with the pasteurization and condensation of milk which is carried out in copper vessels and pipes which are coated with a very thin covering of tin. As is well known, these containers are frequently worn, so that the copper comes into direct contact with the milk; in some instances they are not kept thoroughly clean. This is a practical aspect of the food supply which should be investigated further.

Nothing is known of the fate of the vitamins within the body. However, the clinical course of scurvy and our knowledge of the characteristics of its vitamin suggest certain deductions. As you all know, the antiscorbutic vitamin is protected from destruction by the acid reaction of food, and, on the other hand, undergoes more or less destruction when rendered even slightly alkaline, a result which is intensified by moderate degrees of heat. Experiments clearly demonstrating this behavior have been carried out for acid antiscorbutic foodstuffs, such as orange juice and tomato. La Mer,³ who has studied this question very carefully, was able by the addition of alkali to tomato juice to increase the destructive effect of heat as much as 22 per cent. It is evident, therefore, that gastric juice protects and preserves the antiscorbutic potency of food, whereas a lack of hydrochloric acid tends to destroy it. Have we not here a condition which may prevail in some cases of scurvy which develop in spite of what should be an adequate supply of the specific vitamin? Those who have followed the literature of scurvy must have been impressed by the authenticity of reports of this nature, which have been reiterated for centuries. It would seem a logical explanation of these irregularities that the vitamin has been destroyed within the body by prolonged contact with alkaline digestive juices. These baffling failures of antiscorbutic food have occurred generally in prisons or among soldiers living in damp and unfavorable surroundings, or among troops that were homesick, besieged, or in retreat. In other words, the experiences have involved individuals who were mentally depressed. For some time it has seemed probable that there is a psychic element in the development of scurvy; this aspect can be interpreted in part as due to a suppression of function of various glands in the body, especially the acid secreting glands of the stomach. From the broader standpoint such considerations indicate the range of aspects involved in these problems and particularly emphasize the inherent limitations of animal experimentation in affording a full understanding of human nutrition. A lack of secretion of hydrochloric acid is not the only condition which will tend to destroy the antiscorbutic vitamin within

the body. It is evident that unless this vitamin is absorbed quickly from the alkaline medium of the intestine it will be rendered inert. In the blood it again encounters an alkaline medium; in the tissues it is in addition subjected to destructive oxidative processes. These various conditions warrant the conclusion that this vitamin must exercise its action quickly within the body, and, furthermore, that it cannot be stored in the form in which it is ingested and is known to us. A corollary of these conclusions is that, unless it undergoes a rapid alteration to a more stable chemical state, its action would seem to be functional rather than structural.

One aspect which a study of the vitamins has brought into sharper relief than heretofore is the physiologic difference between man and the lower animals, as well as among the lower animals themselves, as to nutritional requirements. In relation to the antiscorbutic vitamin, man reacts as does the guinea pig; in respect to vitamin B, he reacts like the pigeon or the fowl; and in respect to vitamin A (fat-soluble factor), he resembles the rat. The rabbit, for reasons entirely unexplained, withstands deprivation of any vitamin with comparative impunity, and therefore is not employed in any biologic test for these factors. Furthermore, a diet which leads to a definite avitaminosis in one animal, leads to a quite different one in another animal. For example, a diet of polished rice brings about polyneuritis in the fowl or in the pigeon or in the rat, but induces scurvy in the guinea pig.* What are we to think of these peculiar vagaries? Are we to attribute them to divergent susceptibilities of the individual species, or rather to varying chemical reactions within the body? Whatever may be the answer, such divergent responses indicate and illustrate the fact that the metabolism of the lower animals and of man present far greater differences than have heretofore been acknowledged. They should caution against the practice of accepting unreservedly, as applicable to man, nutritional experiments which have been performed merely on certain of the lower animals.

Another aspect that the recent studies of vitamins has served to elucidate is that foodstuffs should not be regarded as fixed chemical entities; that they vary greatly according to attendant circumstances. It is true that this was known to chemists from analyses of the inorganic constituents, but its significance was not realized until it was evident how essentially different, from a biologic point of view, a food might be according to its content of vitamins. This distinction was first pointed out in rela-

tion to the antiscorbutic content of vegetables, which may be rich or poor in this factor according to whether they are plucked young or old, or whether they are allowed to age after they have been gathered. Of far greater interest is the fact, which many investigators have helped to substantiate, that the vitamin content of milk depends upon the vitamin quota of the ration of the animal; in other words, that animals are unable to synthesize vitamins. This fact has been demonstrated for all three established vitamins, and its significance and importance are obvious in regard to the diet of the nursing mother, of the cow or of other lactating animal.

We may well consider whether this point of view may not be extended to other constituents, whether the composition of the milk is not dependent on the diet more than is generally believed. For years, probably for centuries, the laity have held to the opinion that mother's milk could be altered by diet and that it could in this way be rendered harmful for the suckling. On the other hand, the tendency of modern medicine has been quite in the opposite direction, so that woman's milk has come to be regarded, from a clinical aspect, as a fixed entity, and its lack of compatibility has been ascribed rather to an idiosyncrasy of the infant. The exception has been the general viewpoint in relation to a varying fat content. Some physicians, however, have remained unconvinced by the negative evidence, trusting to the homely teaching of clinical experience. Of late several studies from the clinic and from the laboratory have led to the conclusion that milk may be rendered harmful by the entrance from the blood of an excess of normal constituents or of foreign substances. One of the most interesting of these reports is that of Shamon,⁴ who showed, by means of anaphylactic tests, that egg protein may be present in breast milk after the ingestion of a moderate quantity of egg, and that breast-fed babies may be sensitive to food which the mother has eaten, leading possibly to colic and indigestion. Howe's interesting work showing the absence of englobulin and pseudoglobulin from the blood of newborn calves and its sudden appearance after ingesting colostrum points in a similar direction.⁵ Hartwell's experiments on rats led to conclusions of a similar nature. She found that a diet containing a large amount of various proteins—egg albumen, blood albumin, edestin, gelatin, gluten—apparently rendered the milk poisonous and finally checked its flow.⁶ The toxicity of the mother's milk was evinced by convulsions as well as by loss of weight. Furthermore, Schick's⁷ recent demonstration of what he has termed "menotoxine" in the blood of some women during menstruation recalls the occasional disturbances in nursing infants

*Darling, whose opinion may be quoted in view of his large clinical experience, writes: "A deficient diet—in a tropical African negro mine laborer causes scurvy; in a Cape Colony mine laborer, mild scurvy; and in some African negroes a diet that causes scurvy in one set of men causes nutriti- in others."

which have been attributed by the laity to this association. The cells of the mammary gland do not seem to possess the power of protective filtration with which they have been credited. Viewed from our knowledge of vitamins and other recent investigations, it would seem that milk is a far more varied biologic product than we have been wont to believe, both in regard to its physiologic and its pathogenic constituents.

One of the commonest fallacies is considering and designating the vitamins, particularly vitamin A, as growth factors. It is true that vitamins are especially needed during the growing period, as shown by their great abundance in young plants. There is, however, no single factor or group of factors to which this attribute should be applied. And it is well for man that this is so. In a particular instance an essential amino acid or an inorganic salt may prove to be the growth factor. I should like to illustrate this point by some recent experiences which have made it seem possible that a lack of iron may lead not only to anemia in infants but likewise to marked retardation of growth. In the case of some infants whose diet consisted of milk, but in some instances also of cod-liver oil, of orange juice and even of yeast—in other words, the three established vitamins in their most concentrated forms—no growth came about for many weeks. When, however, as little as two teaspoonfuls of spinach were added to the diet daily there was a prompt response of the

growth curve (Charts 1 and 2). McClendon and Sedgwick⁸ and also Berman⁹ have reported similar experiences. In these cases, had we not been supplying the vitamins in adequate amount, the sudden gain in weight might well have been interpreted as the result of the vitamins supplied in the spinach. This criticism is applicable to recent investigations on the effect of yeast on the nutrition and gain in weight of infants. Following the addition of the yeast to the dietary the infants gained, and it has been therefore concluded that this gain signified a former lack of water-soluble vitamin. But it was not evident that the dietary had been lacking in this vitamin. My own experience in this regard, embracing a large number of observations, has been that infants frequently gain in weight following the addition of yeast to the diet, apparently irrespective of its previous vitamin content.

There is a growing tendency to adopt the point of view that we have reached a point where we possess a knowledge of all the elements which go to make up an adequate and complete diet, and, accordingly, that our future task is merely to ascertain the absolute and relative amounts of these constituents required under various conditions. The problem is, however, by no means so simple. There are probably many reactions and interactions which have not been considered. I should like to illustrate this point by the *unexplained rôle which cereal plays in the nutrition of the infant*, a phenomenon which has interested me for some time and well illustrates the complexity of dietary problems. Not infrequently infants receiving milk mixtures which should suffice to bring about growth, fail to gain until cereal is given in addition; the babies are generally over six months of age. In our experience, cereal in the form of farina has proved effective where cod-liver oil, egg yolk, beef drippings, or autolyzed yeast has failed (Chart 3). The diets were in some instances rich in fats or carbohydrates, in some they consisted of breast milk. There would be nothing surprising in the fact that an addition of cereal brought about a gain in these babies were it not for the insignificance of the amounts which were able to accomplish this result. The beneficial result could not be attributed to a simple caloric increase of food, for only two to three grams of the dry cereal were given, representing but a slight addition in calories to the dietary. Hopkins¹⁰ reports observations on rats which probably are of a similar nature. He found that after a certain period rats failed to grow on a milk diet. An addition of ferric ammonium citrate or of hemoglobin failed to bring about growth, but when bread was added to the dietary growth recommenced. Recently Mattill and Conklin¹¹ have reported a failure to bring about continued growth in rats on a

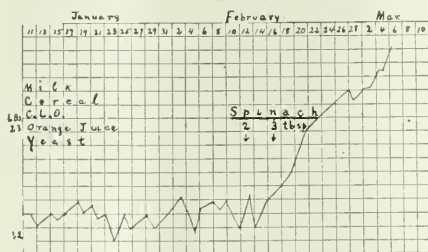


Chart 1.—Growth following the addition of small amounts of spinach to the diet.

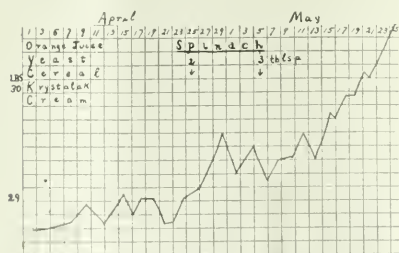


Chart 2.—Growth following the addition of small amounts of spinach to the diet.

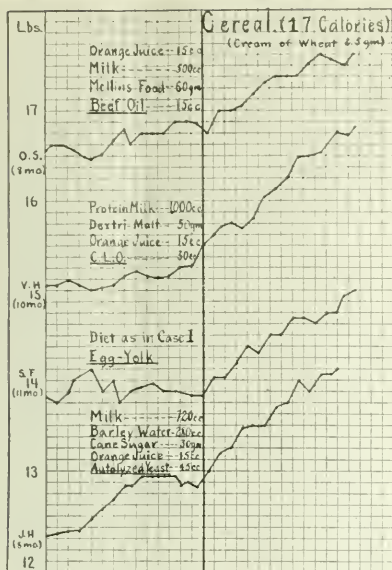


Chart 3.—Four cases which reached a stationary phase in weight, and where gains were brought about by small additions of cereal to a diet which was adequate in caloric content. The first three diets were unusually rich in fat-soluble vitamins, and the fourth in water-soluble (autolyzed yeast). In the last case (J. H.), 1 gm. of dried cereal, equivalent to 28 calories of food, were added.

milk diet, but success when flour was added, and therefore came to the conclusion that other foodstuffs, in particular starch, provide a requisite which milk does not possess. Osborne and Mendel¹² were able to raise rats to maturity on a diet of milk powder, starch and lard. There is no adequate explanation for this phenomenon, but in studies on animals and on man a rise in the weight curve which cannot be explained according to our present knowledge should not be regarded as being the result of a lack of established or of undiscovered vitamins.

Another point which has not been sufficiently considered in animal experiments is the importance of the physical texture of the diet: whether the food is given in the form of powder, fluid or paste; whether it is coarse or finely divided. If we are to judge by the recent experiences in infant feeding the physical state of the food is of great importance in deciding its nutritional value. The superior value of dried milk over fluid milk, in many cases, is certainly partly attributable to physical changes brought about by desiccation. That this factor plays a rôle also in the nutrition of our experimental animals was made evident to me some years ago when attempting to feed guinea pigs small amounts of cod-liver oil,

All attempts to make them tolerate even a few drops of this oil met with failure; they promptly developed malnutrition and died. Rats, on the contrary, tolerate and thrive on far larger amounts of cod-liver oil. The recent experiments of Hart, Halpin and Steenbock¹³ on leg weakness in poultry showing that paper, in a concentration of 10 per cent. of the ration, was effective in preventing the progress of this disease when added to a synthetic ration has, no doubt, a wider application in animal and human nutrition.

Before leaving this phase of the subject, I should like to refer briefly to an aspect which is well known to the children's specialist and to other clinicians, but is rarely considered by the laboratory investigator of nutrition. I refer to the opposite of disorders due to deficiency, to disorders resulting from an excess, from an oversupply of one or more dietary factors. It seems quite possible that experiments, which, under the prevailing point of view, are judged solely by the criterion of an adequacy of the various food elements, may be more correctly interpreted as due in part to an oversupply of some factor. For instance, we all know that infantile rickets frequently occurs among overfed babies. In experiments on rickets it is entirely inconsequential in regard to the absorption or retention of the essential inorganic salts how great the fat or the protein content of the various diets may be, and, furthermore, in what form these organic constituents are fed? Experiments on rats, which I shall discuss elsewhere, would seem to show that increased protein plays a rôle in this connection. In other words that an excess of some food constituent may lead to a result similar to that brought about by a deficiency.

It is only recently that we have come to appreciate the dominant rôle of latent phases of malnutrition, to realize that we have to deal mainly with disorders of nutrition and not with nutritional disorders. Rickets, scurvy, beriberi, and similar nutritional disturbances of gradual development and slow onset, occur far more frequently in their latent undeveloped forms, than in the dress which we have been accustomed to clothe them. The very fact that scurvy takes months to develop before reaching a stage where it can be recognized, indicates that the number of larval, unrecognizable cases must far outnumber those which can definitely be diagnosed. The same is true of rickets. This realization indicates a marked advance in our conception of the nutritional disorders and will, undoubtedly, change current viewpoints in many respects. When we shall have devised methods to perceive those invisible parts of the spectra of pathological conditions, we shall undoubtedly find them far more prevalent. We may thus be led to the conclusion that their

relative incidence and their geographic and sociologic distribution is different from what we have been wont to believe, having merely the frank and full-blown pictures in mind. Indeed, we are already faced with the difficulty which will increase as time and knowledge advances, of deciding what phenomena justify a diagnosis of certain well-established nutritional disorders. I believe I reflect the opinion of many workers in this field, in stating that there is an increasing uncertainty in this regard, both among clinicians and laboratory investigators. What is to be regarded as scurvy, rickets, beriberi, pellagra, etc., and what is not? As a matter of fact, we all realize that normal nutrition imperceptibly merges into abnormal nutrition. Today we are far from being able to detect nutritional derangements at their earliest beginnings—they have progressed to a marked degree before we finally recognize them and dub them with a definite name such as "rickets" or "scurvy." We constantly have to shift our outposts toward the realm of the normal—arbitrary outposts designating a fictitious boundary between the normal and pathological. It is evident that this trend is leading us unconsciously and little by little away from a consideration of what we now term disease. It is also leading us from curative medicine into the domain of preventive medicine. At present preventive medicine has not advanced sufficiently far to concern itself merely with the preservation of normal physiologic conditions, but includes a large number of mild and latent forms of disturbances.

Those of you who have been following the experimental work in this field will have noticed numerous altered viewpoints which have become increasingly evident during the past few years. It may be well to refer to these newer aspects as, in a measure, they are applicable to human nutrition. Only a few years ago it was considered sufficient to ascertain the effect of a diet for a period of weeks or of months. Today, largely as the result of the investigations of McCollum and of Osborne and Mendel, we know that to regard a diet as completely adequate the observational period must extend at least to the stage of maturity—the animals must grow at a normal rate, must be able to reproduce at frequent intervals, and successfully to suckle their young. More than one generation may have to be followed as a deficiency becomes apparent at times only in future generations. The necessity and wisdom of a survey of a larger span of life was clearly demonstrated in the case of the peoples of the Central Empires during the war. Had the war lasted but two or three years the effect of the inadequate ration would not have been apparent; it required three or more years of a diet, which was insufficient in numerous

particulars (adequate protein, vitamins, phosphates), to bring about unmistakable signs of malnutrition. Furthermore, it is interesting to speculate as to the future course of the growth and development of these children. Will the new generation be of a stature smaller than the present population, or will a belated adequate ration bring about an increased increment of growth? Will this increase come about at once, or will it be deferred until the added growth impetus of maturity?

Not only have we constituted a longer span of life, as the nutritional unit, but we demand special recognition of the various life cycles. The period of active growth is considered a definite entity. It has been found necessary to make still finer distinctions; for example, rickets experiments performed on rats, weighing 30 to 40 g., are recognized as not comparable to those undertaken in rats a fortnight older, weighing 60 to 70 grams. These differences are not merely quantitative to be calculated according to variations in body weight, but are distinctive for the particular period of life; so that an animal during its period of active growth is almost as distinct from the adult animal as if it belonged to a different species. It possesses differences in susceptibility and immunity to the nutritional disorders.

The main factors determining the nutrition of the body are *diet and environment and infection*. This is the triad, which, working hand in hand, or at cross purposes, brings about a physiologic or a pathologic state. It is impossible to give these three factors their relative values, as this varies according to circumstances. Studies of the deficiency diseases have served to illustrate in a manner, more convincing than heretofore, the intimate relationship and interrelationship of nutrition to infection, and have led to our attributing increased significance to nutrition in this regard. Indeed, the chief clinical importance of disorders of nutrition in times of peace and plenty is their effect of so altering the tissues as to render them more susceptible to the invasion of bacteria or toxic products. Clinically it is by no means easy to determine the respective rôle of infection and of nutrition when confronted with disease. Either can result in secondary involvement by the other. There is in my opinion no more common error in considering nutritional disorders in infants, and in judging the merits and demerits of particular foods or food preparations, than attributing failure to the diet where it has been occasioned by mild infection. This is due largely to the conception that infection must be accompanied by a rise of temperature. That this is not so may be illustrated by instances of the mild infectious diseases such as chicken-pox, where a cessation of gain in weight may occur in infants

without any rise of temperature. It is evident also following vaccination, where a stationary weight may precede by a day or two the febrile reaction of vaccinia. This interrelationship of infection and nutrition was exemplified in 1913, when, as the result of a diet of pasteurized milk, latent scurvy developed among a group of infants under my care. This scorbutic taint was followed by a widespread grip infection, with hemorrhagic skin manifestations, which disappeared only in part on the administration of orange juice. For some years it was difficult to know how to interpret this peculiar clinical picture, whether to regard the epidemic as due to scurvy, or to infection. As the result of subsequent experience I realized some years later that it had been due to both causes—the result of a primary nutritional disturbance and a secondary bacterial invasion. It is probable that the overt and classical signs of scurvy—those which are described in the textbook—for example, the hemorrhages of the gums, are not always purely scorbutic or nutritional, but the result of the secondary infection which comes about, sooner or later, in conjunction with this disorder.

The third factor which markedly affects nutrition is environment, which includes the air we breathe, atmospheric conditions, our shelter, clothing, and many other apparently trivial factors connected with our daily life. Here is a field which lies almost untouched, and which, undoubtedly, will prove most fertile. It is one which has been ignored in a consideration of many questions of nutrition. For example, the diets of peoples living in various countries, under divergent climatic conditions, are frequently compared without considering for a moment the possible influence of environment. It is not permissible to compare the dietaries of the children of New York, London, Edinburgh, Dublin, etc., and to interpret their comparative nutrition as if they were all living in the same city. The very fact that the infant mortality—perhaps the most delicate indicator of environmental conditions—of London has been low for many years, in spite of a wretched milk supply and inadequate educational propaganda, indicates the rôle of non-dietetic influences. The effect of environment on plants is well known and may be illustrated by an interesting experiment carried out by the United States Department of Agriculture some years ago. The growth of a certain strain of wheat which grew particularly well in Kansas was tested in California. To this end carloads of the Kansas soil were transported to California for sowing of the seed. In spite of the fact, however, that soil and seed were the same, the yield in California could not be made to equal that of Kansas. There is a

real and growing danger of forgetting these environmental factors in gathering statistics of the geographic distribution of disorders of nutrition, such as rickets, caries of the teeth, etc. Still greater care must be exercised in interpreting the influence of diet on races which lived centuries or thousands of years ago. To draw inferences as to the effect of diet from the condition of the bones of the teeth of the Egyptians, as has been done, is to leave out of consideration differences in dress, in housing, in habits, and perhaps changes in climate, which may well have had their effect on the nutrition of the tissues.

One of the most important factors included under the broad term of environment is the solar rays—light. The peculiar beneficent effect of light was appreciated in far distant ages and led to the worship of the sun, a cult by no means to be belittled when compared with the present-day cult of patent medicines. Hippocrates and Herodotus praised the healing virtues of the sun, and the Romans took sun baths on the flat roofs of their houses. Antyllus, who lived 300 years after Christ, minutely described the indications for the sun bath with and without anointing the body. During the Middle Ages the knowledge of the curative value of the sun seems to have been forgotten. About 50 years ago sun treatment was with difficulty introduced for the cure of tuberculosis and has been carried out with signal success by Rollier in Switzerland. It is strange that the value and need of the sun's rays have not been more fully appreciated when we consider that it has been generally acknowledged by all physiologists that the solar rays are necessary for the proper growth and nutrition of green plants. On the part of physicians this lack of confidence probably is associated with a corresponding overconfidence in pharmacologic preparations, and has been intensified by the fact that heliotherapy has been practised largely by those whom the state did not license to employ accepted methods of therapy. That the physiologists should not have directed the attention of physicians to the potency of this measure shows a lack of appreciation also on their part of the value or the necessity for the animal organism of the sun's rays. From a physiologic viewpoint it would seem that this function of the skin to absorb the effective rays of the sun is comparable to that of the intestine in relation to the constituents of the food—a comparison perhaps the more permissible in view of the similar embryological origin of the integument and the lining of the intestinal tract. Today we know by means of subjective and objective clinical examinations, as well as by animal experimentation, that the sun's rays are able to prevent or to cure rickets; that, indeed, this form of therapy may be regarded

as a specific for this disorder. In my lecture of tomorrow I shall discuss the subject more fully as to the rays which exert this remarkable effect, the influence of pigmentation, the sun's action on the chemical constitution of the blood, etc. It would seem that the action of the sun's rays will have to be taken into account in metabolism studies on animals and on man which concern themselves with the body exchanges of the inorganic salts. From the general standpoint of animal nutrition must we not qualify the usual statement that adequate protein, inorganic salts, the vitamins, water, etc., suffice for nutrition of the animal body, by adding that sunlight must also be provided? This holds true at least for the young, rapidly growing animal.

Before leaving this interesting subject of the effect of solar rays on animal nutrition I should like to mention a clinical observation which suggests that certain constituents of the food may influence the effect of the radiations. A few years ago Myers and I¹⁴ showed that if an infant receives a moderate amount of a food rich in carotin pigment—for example, carrots or spinach—it frequently will develop carotinemia. This condition is quite innocuous and is characterized by carotin in the blood and a discoloration of the skin resembling mild jaundice. Infants having carotinemia are peculiarly susceptible to the sun's rays, the skin having been to a certain degree sensitized, so that the face becomes rough and irritated when exposed to the sun. This condition recalls, in a minor degree, the susceptibility of the skin of rabbits to which eosin has been given. It suggests that other foods or that drugs may act in conjunction with the solar rays.

Nutrition is embracing a broader scope, and its studies, both in the laboratory and in the clinic, and in the world at large, will more and more include a consideration of environment. The effect of atmosphere both out of doors and indoors will have to be carefully studied, and may be found to include factors hardly considered at the present time. Such studies have just begun and can be seriously attempted only when we are able to control some of the factors which comprise climate. This will be no mean task. In closing this consideration of the rôle of environment on nutrition the effect of season must be considered. It is well established that season affects the growth of animals and that children grow more rapidly during certain seasons than during others. The reason for this is not known. Very few studies of the effect of season have been attempted in the laboratory. One of the earliest and most interesting was that of Reid Hunt¹ which showed that guinea pigs are decidedly more resistant to acetomitrile poisoning

in the spring and summer than in the winter, and that this is probably associated with some seasonal variation in metabolism. Those who have carried out nutritional studies for a series of years must feel that there is possibly a seasonal factor which accounts for certain variations in results occurring under apparently identical conditions. The intimate and clear relationship of season to disorders, such as tetany and rickets—quite apart from its influence on the various infectious diseases—well demonstrates the dominant note which climate may exert in our nutritional state. The three main factors in nutrition—diet, infection and environment—probably are so inextricably bound together that it will be impossible to appraise the rôle of each in the disorders of metabolism in which they are concerned.

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SKIN IRRITANTS: EXTERNAL AND INTERNAL*

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THIS paper deals, first, with certain irritated conditions of the skin definitely resulting from contact with various substances, that is, dermatoses of external origin; and, secondly, with certain eruptions on the skin which are of internal origin, that is, from the taking in of certain substances, or because of the formation of certain substances in the body. It does not include the infectious conditions, either bacterial or parasitic.

Both of these subjects are fundamentally connected with the subject of idiosyncrasy. Idiosyncrasy is defined as an abnormal body response to a certain substance. It is an individual susceptibility, a natural or an acquired sensitiveness of the skin to some particular reagent. These two groups of cases are to be explained on the grounds of an individual sus-

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ceptibility of the patient's skin to a particular substance. They are evidences of an unusual response on the part of the skin to substances which may cause no reaction by an average individual. I realize that this explanation does not give a scientific answer for the cause of these conditions, but it is as good an explanation as any that can be given at the present time. It is theoretically possible that for any given chemical there may be an individual who is susceptible to this agent, and if the list of substances causing such conditions is considered the theory seems almost a reality.

GROUP I. THOSE FROM EXTERNAL SOURCES.

This first group of cases, those from external sources, includes the very large number under the diagnosis of dermatitis and dermatitis venenata, the common garden variety of skin eruptions which we have all seen in practice. Let me further classify these cases under the following headings: (1) Those from plants, etc.; (2) from medicinal applications; (3) from occupation; (4) from an intent to deceive; (5) from accidental contact.

Class 1. Plants.—The type eruption of the first class, those from plants, is usually thought of in connection with poison ivy, varying from erythema to the formation of vesicles and bullæ, with marked itching and burning, etc.; and later with sealing, perhaps becoming much eozematized. One is apt to think of dermatitis venenata as including only ivy as a cause, and to forget there are other substances causing similar eruptions. I have recently reviewed at the Massachusetts General Out-Patient Department some 600 records in which there was a diagnosis of dermatitis or dermatitis venenata. There were only about 10 per cent. of these cases whose history included an exposure to woods or ivy. I had thought that the percentage would be higher. These cases are familiar to all of you.

I want to call attention to one member of this group which is becoming a more frequent cause of such a dermatitis. I refer to the primrose, and especially to the one to which the name *primula obconica* is given.

In this connection, I recall especially a woman of 42 who was referred to me in the X-ray Department for treatment of an eruption on her hands. For several months she had had a patchy, erythematous eruption on hands and face, with occasional tiny vesicles and linear lesions which attracted my attention. Inquiry developed the fact that she possessed a primrose, and coincident with throwing away the plant the eruption faded away. It is needless to say that no x-ray treatment was given.

In the treatment of these cases the majority will clear up with the use of the familiar whitewash of carbolic acid, zinc oxid and lime

water. Strickler¹ has treated a series of ivy cases by the subcutaneous injection of a toxin developed from the plant, and marked relief has been obtained in his cases much more quickly than with the ordinary treatment. This toxin, however, is not yet on the market for general use. Schamberger² has called attention to the use of tincture of rhus given by mouth, not only in the treatment of, but also as a means of prevention of poison ivy dermatitis.

Class 2. Medicinal Applications.—In these same 600 cases of which I have spoken there were many with no cause given, but it was rather striking to find so many cases in the second class, that is, the eruptions following the application of medicinal agents. There were 20 per cent., or one in five, who had a history of applying some ointment, liniment, iodine, etc., to the body surface, with the resulting development of a dermatitis. I realized that there were many patients in this group, but did not imagine that it was quite so large. This irritation has usually resulted because the individual has taken it upon himself to prescribe for his own condition. A certain number have received medicines from the druggist, local physician, and the Out-Patient Department.

We are all seeing such cases continually, and it seems to me that the moral is to be careful in the treatment of acute skin conditions to use soothing treatment, and to use extreme care in the prescription of the stronger drugs and applications. The list of substances is a long one, perhaps the most common ones being iodine, sulphonalphthol, sulphur, mercury ointment, liniments and patent medicines. The story in these cases is usually clear, and the treatment is to forbid further application, and the use of a wash similar to the whitewash before mentioned.

Among these cases resulting from too strong treatment I want to say just a word about scabies. The number of individuals infected with scabies has shown a marked increase in the past two years. There are many more individuals being treated and there are many who think they have scabies, and there is a much more common use of sulphur. It is a fact that $4\frac{1}{2}$ per cent. of these 600 cases, or almost 25 per cent. of those from external sources, had an irritation probably due to the use of sulphur in some form or other. This bears out, in a way, the experience which I had in the army with scabies, where I saw many cases of sulphur dermatitis from the use of sulphur ointment, especially by the boys themselves over a considerable period of time. Sulphur dermatitis is an obstinate condition. It is often as bad as the original scabies. It further complicates the picture and often makes it difficult

to determine whether the scabies is cured. It is often necessary to apply a soothing lotion or ointment to quiet down the dermatitis before the scabies can be treated.

Class 3. Occupation.—Among these 600 cases there were 11 per cent. which were industrial in origin, or probably industrial. It is often difficult to decide absolutely in these cases, but I have included only those in which there was a strong possibility. There are many different causes among these cases. Perhaps the greatest number of patients were housewives, or individuals doing housework. We are apt to forget, I think, that housework, with its soap and water, polishes, cleaners, etc., may be the cause of much disability and annoyance, to say nothing of actual suffering in many cases.

In the shoe factories and other factories, the mills, stores, tanneries, machine shops, etc., many and varied chemicals are used; and with closer attention centered on this subject, with the development of industrial hygiene and factory work, many more cases will be found. There is often need of real detective work in searching for the offending substance, but the only solution is the elimination of the substance causing the disability. That is the proper treatment fundamentally. The majority of the acute cases will then clear up fairly readily with a soothing lotion and mild ointment, such as Lassar's paste, or zinc oxid ointment.

I have been much interested in the preventive work which has been done in two industries, namely, among printers and among vulcanizers. Among printers,³ certain of the pressmen develop an eruption on forearms and hands from contact with the inks, with benzine, and from the various methods used in removing inks from the hands. A good deal of experimental work was done on these individuals and it was found that the application of an oily mixture composed of lanolin and oil before going into the pressroom, and the use of a mixture of sawdust and a liquid soap for cleansing purposes, was sufficient to prevent the greater part of these eruptions.

In some of the rubber factories certain of the vulcanizers who were using hexamethylenamine in their work developed an eruption on hands and forearms. Without going into an explanation of the research work involved, I will state that the chemists of the Firestone Rubber Company⁴ found that the immersion of the exposed parts in an alkaline solution, such as a saturated sodium bicarbonate solution, before going to work, was sufficient to prevent this eruption from appearing in those individuals who were sensitive. Examples of cases in this group are numerous.

I recall the case of a photographer's assistant with a very marked oozing, red and crusted skin on hands, forearms and neck, probably

from contact with the chemicals used in developing.

I also recall the case of a machinist working without any sleeves, and with overalls practically saturated with oil. This man showed a very marked folliculitis on both arms and thighs, due to the action of the oil.

Cases in our own profession, among nurses and physicians, from the use of antiseptic solutions of one kind or another, are familiar to all of us. Among dentists are found individuals who are susceptible to novocain, with the result that they have at times much disability from irritated conditions upon the hands.

Class 4. Intent to Deceive.—In the fourth class I wish to mention those cases of dermatitis which are artificially produced by the individual with the intent to deceive. These eruptions occur among malingerers, neurotics, individuals who desire sympathy, or who desire to be free from certain work, or desire to gain admission to hospitals, etc. There are many agents, physical and chemical, which are used to produce these eruptions. They usually present weird combinations of dermatological lesions, and the very strangeness of these combinations often leads to the discovery of their cause. These patients are oftentimes very hard to handle and much patience and tact are necessary in dealing with them.

Class 5. Accidental Contact.—Finally, in the fifth class of these eruptions I am including those cases from accidental contact—the unusual, infrequent cases which do not come in any of the other groups. These cases are often a real puzzle picture and there is need of more of the same detective work which I have mentioned before. The list of substances in this group is very large. It is stated that one physician has a series of 500 cases in each of which a different substance has been the exciting cause. Some idea of the variety can be obtained from the following partial list occurring in these 600 cases: Match box, fur, citronella, wool, hair dye, hair tonic, etc. The following cases will give an idea of this group:

A man, 35 years old, presented himself with a red, infiltrated, rather sharply defined patch on the anterior surface of the right thigh, giving a history of three different similar attacks appearing in much the same area, with intervals of clear skin between attacks. The source of the trouble was finally located in the match box which this patient habitually carried in the right-hand trousers pocket.

A woman, 32, was seen recently with a bright red, papulo-vesicular itching and burning eruption on neck, face and hands. The eruption was sharply circumscribed at its lower border on her chest, coinciding with the upper edge of her dress. She had recently bought a new fur coat; she had worn it several times for

short periods; and on the day of the appearance of this eruption she had worn it to Worcester in the cars, a matter of two hours. Itching and burning had started on that same evening. This dermatitis was undoubtedly due to the dye used in the fur coat. The eruption cleared rapidly in three or four days and since that time she has had two slight attacks, but has finally come to the conclusion that it is necessary to give up the fur coat.

A woman, 42, giving a story of having her hair dyed occasionally, appears with a red, oozing, crusted eruption on forehead, ears and neck, with patches scattered through the scalp; a few small areas on fingers; with a story of having hair dyed two days previously. This case is undoubtedly due to the dye used on the hair.

I am also including in this group some cases which recent research work has demonstrated should be included in this category. I refer to the babies having a dermatitis in the diaper area, this dermatitis usually being associated with an ammoniacal odor. Cooke⁵ of St. Louis has demonstrated that this effect is due to a Gram-positive bacillus in the stool which has the property of fermenting urea and producing ammonia, with the resultant irritation on the buttocks. Without going into the detail of the experimental work, Cooke found that impregnating the diapers on the last washing with some antiseptic, such as mercury bichlorid, 1:5,000, or boric acid, 1:20, and drying the diapers, enough antiseptic remained in the cloth to inhibit the action of the bacillus and cause disappearance of the odor and the consequent clearing of the eruption. This is a comparatively recent piece of work and, I believe, will help us in giving relief to many of the babies who have bothered us so much in the past.

In this series of 600 cases there is one other condition which is confused with dermatitis venenata. I refer to the parasitic group. We are finding that many of the vesicular eruptions on the hands and between the fingers, especially where the areas tend to be sharply limited and to affect the web of the fingers, are associated with the fungus found in the ringworm of the crotch—*tinea cruris*—commonly known as "red flap." It affects the feet and hands and crotch usually, or any one of these, and on the hands may suggest the picture of dermatitis venenata or eczema. I found that in 2 per cent. there was a question of dermatitis venenata and parasitic infection—epidermophytosis. This latter infection is often a very obstinate one and requires vigorous treatment. We often use a combination of acid salicylic, 2; acid benzoic, 4; in adipis benzoat, 30; or 1:5,000, a potassium permanganate solution; or chlorsarobin, 2 per cent., in these cases, but many are very resistant to treatment.

GROUP II. THOSE FROM INTERNAL SOURCES.

In speaking of the second group of dermatoses—those of internal origin—there is without question the same relation between these cases and individual susceptibility. The most frequent example of this condition is found in the condition commonly known as hives—urticaria. This is usually associated with the ingestion of some one particular type of food, or a certain group of foods. We see the same condition following the administration of serum not infrequently.

In the acute type, diagnosis is usually easy, and it is often fairly easy to detect the offending article and caution the individual in regard to its use. These cases usually clear up with the use of a saline, restriction of diet, and the use of a soothing lotion to relieve the itching. As a routine, we are apt to use calcium lactate in most of these cases. The acute type often responds to a hypodermic injection of adrenalin, at least temporarily, and there is, at times, very marked relief following its use. In some of the others, emetine hydrochloride is used, but I am not as familiar with the use of this drug.

The chronic persistent types, particularly the chronic papular urticarias in children, are often a very great test of one's patience and of one's knowledge of therapeutics. Hazen has found that a certain number—in fact, about one-third in his series—had a positive Wassermann, and that in these the symptoms disappeared coincident with antisyphilitic treatment. He further found that a large number of them were undoubtedly associated with focal infections, such as tonsils, teeth, etc. It is possible that in a number of others some one particular food is at fault, and further attempts to detect this food element, if possible, should be made. In some of these cases the French are using more and more, according to the literature, powdered peptone, taken before meals, to aid in the desensitization process. In certain other cases the injection of a foreign protein, such as a typhoid vaccine, seems to act as a desensitizing agent.

In giant urticaria, often called angioneurotic edema, the condition may at times become serious because of the tremendous swelling about the face and neck, sometimes involving the epiglottis. At such times it is well to have adrenalin at hand for use in the event of an acute crisis.

I want to mention, in passing, toxic erythema, and the serum reactions to which I have just referred. The former are more frequently seen in children, and in many of these it is a matter of differential diagnosis from scarlet fever. In the latter are seen the cases which are examples of real anaphylaxis.

There are certain other cases classed under the diagnosis of eczema or pruritus, or under the chronic urticaria of which I have spoken before, which I believe can be included in this group of dermatoses. I refer to those cases caused by the absorption of some food element which affects only a comparatively few individuals susceptible to that particular food element. It is now being found that a number of these cases are a reaction on the part of the skin to some one particular food element. This condition is seen most often in children. For example, in a recent series of eczema in breast-fed babies, it was found that there were 40 per cent of apparent cures, and 20 per cent showed improvement following the elimination of food in the mothers' diet to which the babies were susceptible.

These cases of sensitization are most frequently found in connection with egg albumen, but cases are on record of sensitization to other substances, such as pork, potatoes, carrots, tomatoes, etc. Occasionally there has been reported a real collapse, that is, a real anaphylactic reaction caused by the use of egg albumen.

A middle-aged woman for six months had rather generalized itching, many excoriations, and areas where the skin was much eczematized. She had noted an increase of symptoms after eating tomato, and skin tests on her arm showed a reaction to tomato. She has been well since omitting tomatoes from her diet.

There is also the case of a man of 43 who had had pruritus and for three years, showing much eczematization from scratching. He was found to give a reaction to pork, and his condition cleared with the removal of this article from his diet.

I have been speaking of the skin tests. These occasionally give a valuable clue, but I feel that the value of this test, like many others, is overestimated. It may, however, give valuable information. Like the Wassermann or Widal test, a negative reaction means nothing. A single positive test standing out among a group of negative ones may mean a great deal. The treatment of these cases, of course, consists in a search for the offending substance and its elimination from the diet. So far as I know there is no method of desensitization in these cases.

Let me also mention the pruritus and eczema occurring in diabetes. This is occasionally the first symptom of a diabetic condition, and some work has been done showing a high blood sugar, or a low sugar tolerance in certain of these cases, especially in the pruritus and eczema of the perineal region.

The last group of cases to which I wish to call your attention includes certain drug eruptions. We see rather commonly eruptions fol-

lowing the ingestion of certain drugs, perhaps more commonly after the use of bromide and iodide, but it is only of two or three of the newer drugs of which I wish to speak now.

Luminal is one of our new hypnotics to take the place of bromide as a sedative. Recently at the Massachusetts General Hospital we have had four cases of an eruption associated with the use of luminal, which has served to impress this fact upon our minds. This eruption has been a widely scattered, bright red, macular eruption, the individual elements being small, irregularly shaped macules.

Pherobothalein² is another drug of which an increasing number of cases are being reported. I have always thought that this drug was not absorbed but had some mechanical action upon the mucous membrane. There are, however, certain individuals who are susceptible to it. The eruption in these cases shows widely scattered, irregular, bright red, or even purplish plaques, which show some infiltration. The pigmentation often persists for a considerable period of time afterwards.

Arsphenamin and neoarsphenamin are two other drugs by which an eruption may be caused, this eruption consisting perhaps of a few red macules on forearms and legs, or of an exfoliative dermatitis in some cases.

In concluding I want to give just a word of caution in regard to other forms of arsenic. It is because I have seen rather recently two or three cases of skin change due to the ingestion of arsenic over a long period. There appears the arsenical keratosis of palms and soles, which is seen most commonly. There occasionally appears the generalized arsenical pigmentation. Furthermore, there appear the small, scattered, seborrheic, scaly areas which are not unlike the keratotic areas in elderly individuals which later develop into epithelioma. I feel that these words are not uncalled for, because of the fact that arsenic is prescribed so often for all sorts and kinds of skin conditions.

Finally, I wish to cite, as an example of both of these groups of cases of which I have been speaking, a case of rather extreme sensitization to various factors.

It concerns a man of 24, who was a painter by trade before entering the army. In the army he had a scabies for several months, and apparently had considerable treatment. He appeared at the Out-Patient Department with rather a marked eruption of scabies and was given our usual treatment and directions. Three days later he returned with a very marked dermatitis venenata from the application of the ointment. At the end of a week he returned and his scabies had gradually faded out, but certain areas suggested a macular eruption of syphilis. Further examination showed a primary and mucous patches in his

mouth, so that a diagnosis of syphilis was made. He had one dose of arsphenamin on that day. Two days later he was admitted to the hospital with a generalized exfoliative dermatitis, undoubtedly due to the arsphenamin. This cleared gradually and he was discharged from the hospital. He attempted to resume work as a painter, but after each of five attempts an erythematous and finely papular eruption appeared on hands, face and neck.

This is one of the most marked cases of individual susceptibility which I have seen and illustrates very well the subject under discussion this evening.

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TREATMENT OF FRACTURE INVOLVING LOWER END OF RADIUS WITH ANTERIOR AND POSTERIOR WOODEN SPLINTS.

By T. K. RICHARDS, M.D., BOSTON.

Most of the functionally poor results following fractures involving the lower end of the radius are due to two causes: first, improper reduction; second, too long fixation. It is not the purpose of this paper to discuss the former but to outline a plan of treatment using an-

terior and posterior wooden splints which gives good results functionally.

The first essential in treatment of these fractures is to break up the impaction. Then the fragments must be immobilized. To do this with as little immobilization as possible to the nearby joints—the carpals, metacarpals and phalanges—is desirable. To accomplish this the following points about cutting the splints are all important (Fig. 1).

Place the good arm on a piece of splint wood with the hand ulnar flexed and mark the following seven points:

1. The radial side $1\frac{1}{2}$ inches below the internal condyle of the humerus.
2. The ulnar side $1\frac{1}{2}$ inches below the internal condyle of the humerus.
3. The radial side outside the first metacarpal-carpal joint.
4. The radial side inside the first metacarpal-phalangeal joint (between the thumb and index finger).
5. The radial side just proximal to the second metacarpal-phalangeal joint (this point is well down in the palm of the hand and not near the base of the fingers).
6. The ulnar side just proximal to the fifth metacarpal-phalangeal (here again the point is well toward the heel of the hand).
7. The ulnar side just distal to the styloid of the ulna (this point should be the width of the bones, not the width of the arm, from No. 3).

The radial side of the arm is straight so the splint need not be cut along this edge. Joining No. 1 to No. 2 gives the length of the splint; No. 3 to No. 4 cut out gives a hole for the thumb; No. 5 to No. 6 gives the distal end of the splint across the palm; No. 6 to No. 7 forms the ulnar side of the hand, and No. 7 to No. 2 forms the ulnar edge. When joining No. 4 to No. 5 it is best to make this line parallel to No. 6 to No. 7, as it makes the application of the adhesive easier. (For location of the seven points see Fig. 2.)

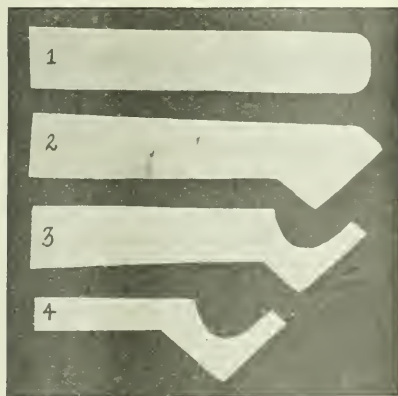


FIG. 1.—1, Straight board used as a posterior splint. 2, The usual posterior splint. 3, The anterior splint. 4, The cut-down anterior splint.



FIG. 2.—The anterior splint applied. The numbers indicate the points to be marked when cutting out the splint. Note that the hand is in ulnar flexion, and that the portion of the splint in the palm is well away from the metacarpal-phalangeal joints.

The finished splint then fits the bones of the forearm. If it has been made to fit the arm it is possible for the bones to move within the splints (c. f. Fig. 3).

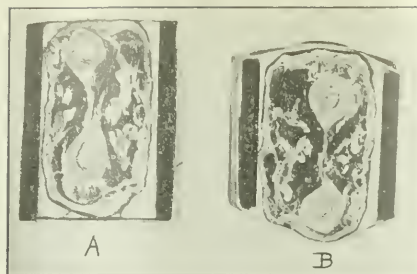


FIG. 3.—Showing the difference in the width of the splints that fit the arm (A) and those that fit the bones (B). It will be readily seen that in A the bones can move within the splints while this is not so in B, where small splints that fit the bones and not the arm are used.

The hand is held in ulnar flexion, which tends to exert traction on the lower fragment of the radius and thus prevents shortening of the radius. Full motion of all the finger and thumb joints is secured, which will keep the tendons from "freezing." (Fig 4).



FIG. 4.—The anterior and posterior splints applied. Note that full motion of all finger and thumb joints is secured.

The posterior splint is the same as the anterior except that the hole for the thumb is unnecessary (another perfectly satisfactory posterior splint is a straight piece of splint wood the length of the anterior splint and the width of the forearm bones).

Both splints are now padded—on the side next to the skin—with eight to ten layers of tightly folded sheet wadding (in large fore-arms it is necessary to insert an extra pad on the anterior surface near the point of fracture to make the splint fit well) and are held in place by three pieces of adhesive,—two, two inches wide and long enough to encircle the splints and the arm. One of these is placed at the proximal end of the splints and the other at the site of the fracture. The third piece of adhesive, one-half inch in width, encircles the splints across palm between the thumb and index finger. When this is applied make sure that the hand is in extreme ulnar flexion.

With the splints in position the patient should be able to move the elbow-joint, all fingers and thumb freely. If the fingers cannot be manipulated so that the tip of each finger can be touched to the thumb the splints do not fit properly, and steps must be taken to make

such motions possible. The commonest cause preventing these motions is that the portion of the anterior splint in the palm of the hand is too long, i.e., it extends beyond the metacarpal phalangeal joints. A second cause is that the whole anterior splint is placed too far distally.

The next point is, how long should the splints be left on? Clinically, union in fractures in lower end of radius begins very early, as is readily demonstrated by the difficulty with which a fracture of the lower end of the radius can be reduced at the end of 48 hours. This is due to impaction of fragments plus inflammatory exudate. Experimentally, it has been shown that in fractures of spongy bone (of which the radius is one) at the end of 48 hours the process of repair—exudate at the site of fracture and organization of the exudate—has well started. Therefore allow twenty-four hours more and the fragments are "stuck" tight enough to allow still more motion to the joints of the hand. Hence at the end of three days remove the posterior splint.

Remembering that the lower end of the radius is the portion which must be held, at the end of one week shorten the anterior splint by cutting two to three inches from the upper end and re-apply.

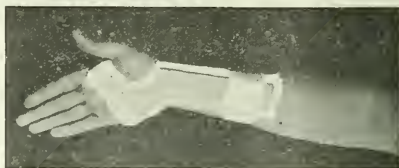


FIG. 5.—The cut-down anterior splint applied.

At the end of ten days cut the anterior splint down to the width of the radius (Fig. 5). The splint left extends from about the lower third of radius to the middle of the palm with a hole for the thumb. This is held by two strips of adhesive—one at each end. Solid union is secured in twenty-one days. Therefore take off all splints at the end of three weeks.

With the first application of both splints the patient is encouraged to move the fingers constantly—this is extremely important as it will do much to prevent the stiffening of all the joints in the hand. A sling is usually not necessary beyond the first three days except that on the street it acts as a sign. "Don't bump into me, please," and without one the patient will use the hand a great deal more.

In elderly individuals and in patients with arthritic tendencies early massage and passive motion, in addition to active motion of fingers, are all important. When a first-class masseur

is available daily massage and passive motion should begin on the tenth day. Following each treatment the cut-down anterior splint is re-applied. At the end of three weeks the patient is told to use his hand normally, augmenting this with massage. At this time the patient will feel more confident if given a supporting bandage.

CONCLUSIONS.

To secure the maximum good results functionally in fractures involving the lower end of the radius treated by immobilization with anterior and posterior wooden splints the following points are important:

1. Break up the impaction.
2. Immobilize with splints that fit the bones and not the arm, *i.e.*, narrow splints.
3. Remove the posterior splint on the third day.
4. Cut down the anterior splint on the tenth day.
5. Remove all splints on the twenty-first day.
6. Be sure of active motion of the fingers at all times.
7. Begin intelligent massage and passive motion on the tenth day.

In a word—"move the joints adjacent to the fractures at the earliest possible moment."

Experience with this method of treatment on the Third Surgical Service (Dr. E. H. Nichols) at the Boston City Hospital, in the Surgical Out-Patient Department and among players on the Harvard football team, has shown that the above method not only maintains the desired continuity of the fractured bones but insures function of the injured arm at an earlier date than any other method.

TWO CASES OF EARLY CARCINOMA OF THE UTERUS TREATED BY VAGINAL PANHYSTERECTOMY.

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It is not intended that this paper should offer anything new on the subject in question, but merely to serve as a reminder that the vaginal route may offer the solution of certain problems in gynecological surgery where abdominal section is contraindicated. Both of the cases I wish to report were cases that needed operative interference; one, a borderline case in which the disease was discovered only by examination of curettings from the uterus; the other, an epidermoid carcinoma grafted upon a proidentia of many years' standing. Both cases were declared unsuitable risks for abdominal panhysterectomy by the

medical service of the Carney Hospital; both patients had vaginal panhysterectomies performed and made uneventful recoveries.

CASE 1. Mrs. M. G. S. Age 42. Occupation, nurse. Admitted to the Carney Hospital, November 15, 1921.

Chief Complaint.—Excessive flowing.

Past History.—Measles and pertussis during childhood. Operation for right inguinal hernia in 1914.

Menstrual History.—Onset at 15 years of age; every three weeks; duration ten days; flow considerable in amount; last period October 29, 1921.

Marital History.—Married 15 years; one pregnancy complicated by eclampsia 14 years ago; difficult forceps delivery; stillborn child.

Present Illness.—Since the birth of her child 14 years ago the patient flowed for ten days at intervals of three weeks; the flow was always excessive in amount. She has lost ten pounds in the last year.

Appetite fair. Bowels constipated. Urination negative. Headaches frequent and severe.

Physical Examination.—Negative, except for marked secondary anemia and emaciation.

Vaginal Examination.—Moderate relaxation of the vaginal outlet; no sign of infection of the urethra or the vulvo-vaginal glands; moderate laceration of the cervix with erosion. The uterus is moderately enlarged and in good position; the adnexa are normal and there are no masses or areas of tenderness in the pelvis.

Blood pressure 128/85.

Urine examination negative.

Operation.—November 17, 1921. Gas ether anesthesia.

The ether examination confirmed the previous findings. The uterine cavity measured three inches. The cervix was dilated and the uterine cavity was everted, considerable hyperplastic tissue being obtained. The patient made a good ether recovery and convalesced satisfactorily.

Pathological Report.—Uterine curettings. Marked hypertrophy of endometrium; suggests possibility of transformation into malignant adenoma; would advise careful watching. (Signed) F. B. Mallory, M.D.

Medical Consultation. Dr. John F. Fennessey.—Heart shows a mild myocarditis. The lungs are negative. Would advise a vaginal rather than an abdominal operation.

The above conditions were explained to the patient, who preferred to have a hysterectomy rather than await developments. The vaginal route was chosen because of her poor physical condition.

Operation.—November 29, 1921. Gas ether anesthesia. Vaginal panhysterectomy. Double sub-inguo-ophorectomy.

A circular incision was made around the cervix, and the anterior vaginal wall was opened by a longitudinal incision. The bladder was separated from the anterior wall as well as from the uterus, and the vesico-uterine peritoneum was opened. The cul-de-sac of Douglas was incised transversely and the peritoneal cavity was entered posteriorly. The parametria and the uterine vessels were ligated with No. 2 chromic catgut and divided. The fundus of the uterus was delivered through the opening in the vesico-uterine peritoneum and the infundibulo-pelvic and the round ligaments were ligated with the same material. The uterus and the adnexa were then removed. The parametrial, the round ligament, and the infundibulo-pelvic pedicles were attached to the vaginal cuff and the vaginal incisions were closed with No. 2 chromic catgut interrupted sutures.

The patient made a good ether recovery; there was no elevation of temperature, although the pulse ranged between 130 and 120 for ten days.

Pathological Report.—Uterus (fundus, body, cervix), tubes and ovaries. Mucosa almost entirely removed. No evidence of invasion. (Signed) F. B. Mallory, M.D.

December 14, 1921. *Discharge Examination*.—Vaginal incision well healed. The vaginal vault is suspended high in the pelvis. There are no masses or areas of tenderness.

December 18, 1921. Discharged well.

CASE 2. Mrs. M. B. Age 54. Referred by Dr. John T. Bottomley. Admitted to the Carney Hospital, January 17, 1922.

Chief Complaint.—"Falling of the womb," "Irritating discharge."

Family History.—Father dead; cause unknown. Mother died of pneumonia. One brother died of apoplexy at 24 years of age. No tuberculosis, cancer, diabetes or insanity in the family.

Past History.—Measles, pertussis and chicken-pox during childhood. Twenty-five years ago the patient had what she described as "slow fever" for two months; this condition was accompanied by fever and chills. Never sick otherwise, never operated upon.

Menstrual History.—Menstruation was regular up to 14 years ago, at which time she had the menopause.

Marital History.—Married 40 years. Husband living and well. The patient had 14 children; eight are living and well, while six died during childhood. The oldest child is 37 and

the youngest is 16 years old. All deliveries and puerperia were normal.

Present Illness.—The patient has had "falling of the womb" for the last fourteen years; five years ago she noticed considerable irritation about the vulva and cervix. The condition was relieved by local medication. Since May, 1921, the patient has had an irritating brownish discharge, which has gradually increased in amount, and has become more sanguinous in character.

Headaches slight; appetite fair; bowels regular. Urination—Day, 4-5; night, 0.

Physical Examination.—The patient, who is short in stature, weighs 275 pounds. Head shows no abnormalities to external examination. The teeth are all absent. The tongue is clear, protrudes in the median line and shows a slight tremor. The neck is obese but shows no glandular enlargement; the thyroid is normal. The chest is barrel-shaped, the heart and lungs are normal. The abdomen is very obese and flabby, otherwise it is negative. The blood-pressure is S. 155, D. 88. The urine is negative.

Vaginal Examination.—The uterus is prolapsed in the third degree; a large cystocele and rectocele are present; the cervix is markedly hypertrophied and shows a large, raw area with indurated edges; there is no apparent glandular involvement.

Medical Consultation, Dr. Edward J. Denning.—Patient's general condition makes an extensive abdominal operation inadvisable; she might stand a quick vaginal operation.

Diagnosis.—Uterine procidentia, carcinoma of cervix.

Operation.—Vaginal panhysterectomy, anterior colporrhaphy, perineorrhaphy.

January 19, 1922.—Gas ether anesthesia.

The hypertrophied and ulcerated cervix was brought down by means of two sutures placed in sound tissue. A circular incision was made above the ulcerated area, and the anterior vaginal wall was opened in the median line. The bladder was separated from the mucosa and fascia of the vaginal wall, the utero-vesical ligament was cut and the bladder was separated from the uterus. The cul-de-sac of Douglas was then opened and the parametria and uterine vessels were secured by means of No. 2 chromic catgut sutures. The uterus was delivered through an incision in the utero-vesical peritoneum, the infundibulo-pelvic and round ligaments were ligated with the same material and the uterus was removed. There was no glandular involvement in the pelvis as far as could be determined. Because the cystocele was large, the round ligaments were sutured together and interposed between the bladder and the vaginal wall, after the excess of the flaps

had been cut away, and the anterior vaginal wall was closed with interrupted sutures of No. 2 chromic catgut. A high modified Hegar perineorrhaphy was performed for the rectocele.

The patient was on the table fifty-eight minutes; she took ether very badly and oxygen was administered during the entire operation.

The recovery from ether was entirely satisfactory, the convalescence was uneventful, except for a slight amount of urinary incontinence, which the patient overcame in four days. The highest temperature was 100° on the second day after operation and the highest pulse was 104 on the same day.

Discharge Examination. — The perineum is well healed and gives excellent support. The anterior wall is healed and is suspended high in the vault. There are no raw areas in the vagina. The patient was referred to Dr. A. J. Leary for x-ray treatments.

CONCLUSIONS.

Both of these cases needed operative interference but their general condition contraindicated extensive abdominal operations.

The first case was one in which we felt that a hysterectomy offered the patient a better chance than radium therapy. Because of the marked secondary anemia and the patient's poor physical condition the vaginal route was chosen to avoid the shock which frequently follows the abdominal operation.

The second case had an epidermoid carcinoma of the cervix, the result of prolonged irritation of a neglected proclitidia. While radium might have healed the ulceration, it would not have removed the cause of irritation, namely, the uterine prolapse. It was thought advisable to remove the uterus and at the same time cure the cystocele and rectocele. This was done in one stage and the patient made an uneventful recovery.

The vaginal operation has distinct advantages in a selected group of cases. It is contraindicated in the presence of pelvic inflammation and where the uterus is of such size that it cannot be easily delivered into the vagina. It is especially adapted to poor surgical risks whose uteri are freely movable and readily delivered through the vaginal canal.

The main objections to vaginal hysterectomy have been hemorrhage, injury to the bladder and the ureters, and prolapse of the vaginal walls. The first two are easily overcome by ligating the vessels before dividing them and by completely separating the bladder from the uterus, following the technic used in doing the interposition operation. Since in doing an abdominal hysterectomy we use the infundibulopelvic, the round ligament and the parametrial pedicles to suspend the vagina, there is no rea-

son why we should have any more prolapse when doing the vaginal operation than in the abdominal one if we attach the same pedicles to the vaginal cuff. In addition, we are able to remove the excess of the flaps of the anterior vaginal walls, and to build a substantial support for the bladder, if necessary. Furthermore, if the perineum is relaxed, it may be quickly repaired without changing the patient's position, and this also adds to the support of the bladder and the rectum.

The convalescence is usually very satisfactory, and since the intestines are not handled during the operation, distention is practically never encountered as a post-operative complication.

Book Reviews.

Collected Papers of the Mayo Clinic, Rochester, Minn. Edited by MRS. M. M. MELLISH. Vol. xiii. Philadelphia and London: W. B. Saunders & Co., 1922.

This very valuable volume covers a wide range of subjects, the list of contributors being men most active in the Mayo Clinic at the present time. The contents are grouped under several headings, such as: Alimentary Tract; Urogenital Organs; Ductless Glands; Blood; Skin and Syphilis; Head, Trunk, and Extremities; Brain, Spinal Cord, and Nerves; Technic, and General.

Under the heading of "General" are several papers on cancer, diabetes in relation to surgery, value of radium in malignancy, an article on the trained nurse, a historical review entitled "In the Time of Henry Jacob Bigelow," and an article entitled, "The Medical Profession and the Public."

There is an index of contributors, a bibliographic index, and an index of subjects. One particularly valuable feature of most of the articles is the bibliography appended after each article.

Illustrations are many and adequate. There are 1318 pages, representing about five hundred separate articles. These articles bring many subjects well up to date and furnish much that is new in the way of experimentation, latest theories in regard to causation of disease, and of surgical technic.

The book is one of the most varied and valuable collections of papers yet issued. Our only criticism would be that many of the articles are perhaps too brief and do not give wide enough synopsis in the concluding remarks.

Internal Secretion and the Ductless Glands.

SWALE VINCENT. Second Edition. Longmans, Green and Company, 1922.

It is a pleasure to read a good book on the Internal Secretions, particularly at this time, when so many inaccurate, imaginative productions are flooding our bookstores. The second edition of Professor Vincent's book brings it up to date. There is, however, one unfortunate omission: the elimination of references makes its use as a reference book difficult; for on a subject which is changing so rapidly and concerning which there is so much inaccurate material, it is essential for a clear understanding that references be available. There ought to be in the text at least an indication—such as the date of publication after the author's name. This single criticism, however, stands alone in what is otherwise a laudatory review. The method of attack by the anatomical and comparative physiological methods is excellent, and aids markedly in understanding what is known about the functions of the endocrines. And the book has the great advantage of basing conclusions only upon scientific data. There are, consequently, places where it seems incomplete; but this is the fault of our own scientific knowledge rather than of the author's. The book is recommended to those who want to know, without much theorising and with the evidence well described from the scientist's point of view, what has been discovered about the internal secretions.

Skin and Venereal Diseases. The Practical Medicine Series, Vol. vii. Edited by OLIVER S. ORMSBY, M.D., and JAMES HERBERT MITCHELL, M.D. Chicago: The Year Book Publishers, 1921.

The publishers call attention to the fact that "the present volume is one of a series of eight, issued at about monthly intervals, beginning in May, and covering the entire field of medicine and surgery. The series is intended primarily for the general practitioner, but the arrangement in the volumes is such that one interested in a special subject may buy only the part in which he is especially interested.

The seventh volume of the series is devoted to the skin and venereal diseases. In it will be found abstracts from leading articles on the subjects arranged under three main headings, experimental, clinical, and therapeutic.

The articles are abstracted clearly and intelligently. They all have a worth-while story to tell which is well told.

Anyone reading this volume on Skin and Venereal Diseases year by year may rightly feel that he is up with the times. It can be recommended to practitioner and specialist alike. Each will find in it much that is valuable and worth knowing.

Transactions of the American Gynecological Society. Vol. xlv.

In this volume the papers read before the American Gynecological Society for 1921 are grouped. They have all been published in other journals before, and they need no special comment at the present time. The one article that stands out in the group is the one by Dr. Sampson of Albany on "Perforating Hemorrhagic Cysts of the Ovary." It is a remarkably clear, well thought out, original piece of work.

Practical Psycho-Analysis. By H. SOMERVILLE, B.Sc., F.A.C.S., L.R.C.P., M.R.C.S. New York: William Wood & Co., 1922.

This small volume is another treatise on the general principles of psychoanalysis, and it only differs from books of this class in that it discusses almost wholly the clinical aspects of the war neuroses and their underlying mechanism, according to the psychoanalytic viewpoint. In a general way, the practical treatment of the war neuroses has shown the fundamental soundness of psychoanalysis, because it has been demonstrated that the mind of the war neurotic represents a mind which has regressed to an earlier period of childhood. The book is well written, clear, intelligent, and sympathetic. This sympathetic attitude differs from the resistances, prejudices, and emotional discomforts of some writers on the subject, when faced with the truths of this most important of all recent advances in neurological therapeutics.

The book, however, is obscure on several points, such as the introduction of the terms subconscious and co-conscious instead of limiting the discussion to the term unconscious, a procedure which is bound to confuse the beginner. In addition, the example given of eliciting the Oedipus-complex, is too much in the nature of a cross-examination and leading questions, and too little encouragement is given for the spontaneous productions of the subject under analysis. The difficult subject of narcissism is handled very well, except that there is not described with sufficient clearness the important part played by the narcissistic component of sexual hunger, in the production of the anxiety and dread of the war neuroses.

A Psycho-Analytic Study of Psychoses with Endocrines. By DUDLEY WARD FAY, PH.D. Washington: Nervous and Mental Disease Publishing Co., 1922.

This volume is number 33 of the Nervous and Mental Disease Monograph series. It is both psychoanalytic and endocrinological, the object of the study being to discover whether or not there existed any correlation between certain endocrine disorders and certain psychotic syn-

dromes. Twenty-two case histories are given in detail. The results of the study seem to corroborate the final conclusions of Kraepelin (who at one time suspected that there might be some connection between schizophrenia and endocrine disorders), but who finally failed to establish any connection between psychosis and endocrine imbalance, particularly after he had attempted for a long time to influence the course of schizophrenia by the administration of various ductless glandular products.

Most of the cases studied in this monograph were schizophrenics of rather intense grade of severity, too introverted and too far removed from reality to be influenced by psychoanalytic treatment. The effects of gland feeding were only temporary stimulation, although the writer feels, that in incipient schizophrenia, a combination of thyroid stimulation and psycho-analysis might be an excellent method of attack.

Bulletin of the Massachusetts Department of Mental Diseases. Vol. v, No. 1. 1922.

This excellent publication has now reached its fifth volume and the present number is fully up to the standard of its predecessors. The articles comprise a wide scope in general psychiatry, such as neuro-syphilis, social psychiatry and general papers on more technical laboratory studies.

Current Literature Department.

ABSTRACTORS.

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OPEN PNEUMOTHORAX IN ITS RELATION TO THE EXTIRPATION OF TUMORS OF THE BONY CHEST WALL.

HEDELOM, C. A. (*Archives of Surgery*, May, 1922) very thoroughly discusses the question of pneumothorax, the conditions under which it is most liable to occur, its dangers, and its final outcome. He recognizes the disadvantages of having this accident happen in the course of operative work on the chest, but he shows that it may happen under almost all conditions without serious damage. The article furnishes an interesting discussion of this particular subject. [E. H. R.]

THE GENERALIZED TYPE OF OSTEITIS FIBROSA CYSTICA.

MORTON, J. J. (*Archives of Surgery*, May, 1922), gives a brief but thorough description of this disease with a typical case illustrated by many excellent plates, and shows the benefit to the femur from the use of the wedge-shaped osteotomy. He then classifies the types of this disease and gives a chart of the various reported cases. [E. H. R.]

UNDULANT FEVER IN MALTA.

ZAMMIT (*Ann. Trop. Med. and Parasit.*, vol. xvi, p. 11), and STEVENS (*ibid.*, page 11).—Discussing the prevention of undulant fever, Zammit points out that this disease was promptly and almost completely eradicated from the British Navy in the Mediterranean as well as from the Garrison at Malta after 1906. This followed the promulgation of orders by which goat's milk was eliminated from the dietary of the Garrison and the use of unboiled milk was forbidden in the Navy.

In spite of efforts of the Sanitary Office to instruct the native civilian population, these people remained sceptical as a rule and failed to follow the advice given, with the result that the incidence of undulant fever among them remains considerable.

Adequate inspection of goats and destruction of all infected animals is therefore recommended as the only feasible method of eradicating the disease from Malta.

Stevens provides data and charts which show in a striking manner the incidence of undulant fever in the Navy, the Garrison and in the civilian population before and after 1906.

"A Parasite Resembling *Plasmodium Falciparum* in a Chimpanzee." B. Blacklock and S. Adler (*Ann. Trop. Med. and Parasit.*, vol. xvi, p. 99).

The writers found in the blood of a chimpanzee in Freetown, West Africa, a parasite morphologically indistinguishable from *Plasmodium falciparum*. The parasite appeared to them to be the same as that described by Reichenow in chimpanzees and gorillas and stated by him to be the human parasite.

Failure to transmit the disease experimentally from the case above mentioned to two human subjects led the writers to doubt the correctness of Reichenow's conclusions.

[G. G. S.]

THE ANTIDIURETIC EFFECT OF PITUITARY EXTRACT APPLIED INTRANASALLY IN A CASE OF DIABETES INSIPIDUS.

BLUMGART, H. L. (*Arch. of Int. Med.*, vol. xxix, No. 4, April 15, 1922), reports in detail a case of diabetes insipidus in which pituitary extract was administered subcutaneously, intranasally, by rectum, and by mouth. The comparative efficacy of these measures is charted. In this case and in three others treated later, extract of the posterior lobe applied intranasally checked both polyuria and polydipsia as effectively as hypodermic injection. The extract can be administered either by spraying the nose or introducing pledgets of cotton saturated in pituitrin. Administration by mouth and by rectum had no effect. This marks a distinct advance in the treatment of diabetes insipidus, in which repeated hypodermic injections become exceedingly trying for the patient.

[C. H. L.]

THE VALUE OF QUINIDINE IN CASES OF ATRIAL FIBRILLATION AND METHODS OF STUDYING THE CLINICAL REACTION.

LEWIS, T. (*Am. Jour. Med. Sci.*, June, 1922, vol. clxix, No. 6), after giving the methods by which the action of quinidine is studied, speaks of the limitations to, and cautions to be observed, in its use. He says that in some cases a single dose of 0.6 gm. may be sufficient, in others repeated doses up to a total of 10 or 15 gm. may be necessary. The precise limits beyond which it is unwise or unprofitable to proceed are still largely unknown. Contrary to some observers, Lewis finds that the effect of quinidine is practically as great when given with or after full doses of digitalis as when given alone. The simultaneous administration of digitalis has the great advantage of keeping the ventricular rate at a comparatively low level throughout the quinidine reac-

tion and thus eliminating or controlling tachycardia. The ventricular rate often rises after quinidine to from 120 to 160 per minute. This may disturb the patient, and if the auricular rate falls too far a serious accident may occur. Therefore, in cases with high ventricular rates, a combination of quinidine and digitalis is preferable to quinidine alone.

The following contraindications are enumerated:

1. Serious intolerance to quinidine causing sudden loss of consciousness with respiratory standstill. Because of this, the patient should first receive a small first dose to test tolerance.

2. When there is much dilatation of the heart, as shown by congestion of the liver and veins, the use of quinidine is contraindicated.

3. In cases in which there have been signs or symptoms of recent embolism, the use of the drug invites disaster. Auricular fibrillation favors the formation of clots in the auricular appendices, and the reestablishment of normal action favors the detachment of such clots.

The usefulness of quinidine is limited from the clinical standpoint by several facts. First, the high percentage (50) of failures to restore normal rhythm. Second, by its unsuitability when venous stasis exists. Third, and most serious, by its failure to more than temporarily control the fibrillation.

Lewis concludes that so far the value of quinidine has been greater in adding to our knowledge of fibrillation than as a therapeutic agent. "It is a treatment emphatically for the wards rather than for use in an out-patient department."

[C. H. L.]

THE PREVENTION OF SIMPLE GOITRE IN MAN.

KIMBALL, O. P. (*Ann. Jour. Med. Sci.*, vol. cxxiii, No. 5, May, 1922).—This article from the Cleveland Clinic is based on the author's experience in goitre prevention in the public schools of Akron. Simple goitre only is included in his report. This type of thyroid derangement is endemic in some parts of the United States, as well as in Europe. The author believes that whatever the fundamental cause of the condition may be, it is directly due to lack of iodine in the organism. This belief is based on Marine's work, and upon the results obtained in the school children treated.

Three thousand eight hundred and seventy-two girls in the Akron schools were examined. Forty-three per cent. had normal thyroids. Forty-nine per cent. showed slightly enlarged thyroids, six per cent. had moderately enlarged thyroids, and 0.2 per cent. had markedly enlarged thyroids.

The following summary of pupils taking prophylactic treatment is striking. The treatment consisted of the administration of 0.2 gm. sodium iodide daily for ten days, repeated each spring and fall.

	Taking.		Not taking.	
	Totals.	Per cent.	Totals.	Per cent.
Normal:				
Unchanged	906	98.8	910	72.4
Increased	2	0.2	347	27.6
Slightly enlarged:				
Unchanged	447	41.9	698	72.8
Increased	3	0.3	127	13.3
Decreased	659	57.8	134	13.9
Moderately enlarged:				
Unchanged	29	20.3	57	64.0
Increased	21	23.6
Decreased	114	79.7	11	12.4
	2,190		2,305	

From these figures it appears that the administration of iodine has a marked effect in preventing simple goitre. No ill effects were noted beyond 11 cases of iodide rash, only 5 of which were severe enough to cause the treatment to be stopped. The article is an important one.

[C. H. L.]

SOME PROBLEMS IN INTRACRANIAL DIAGNOSIS.

GORDON, A. H. (*Can. Med. Assn. Jour.*, vol. xii, No. 2, Feb., 1922), describes nine cases which he groups under this heading, including one of cerebral hemorrhage thought to be intracerebral and pathological but actually on the surface and traumatic; one of chronic pulmonary abscess with cerebral abscess and meningitis, wrongly diagnosed as tuberculous meningitis; tumor of the brain developing in a so-called neurotic person, etc. He emphasizes the need of sufficient and systematic examination and the use of great care in interpreting the evidence. The article is interesting to review and should be read by those interested.

[A. W. C.]

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

CASES REPORTED WEEK ENDING JUNE 17, 1922.

Disease	No. of Cases	Disease	No. of Cases
Chicken-pox	75	Ophthalmia neonatorum	17
Diphtheria	86	Pneumonia, lobar .	28
Dog-bite requiring anti-rabic treatment	6	Scarlet fever . . .	87
lethargica	1	Syphilis	19
Encephalitis . . .		Suppurative conjunctivitis . .	4
Epidemic cerebrospinal meningitis	3	Trachoma	1
German measles . .	11	Trichinosis	1
Gonorrhea	60	Tuberculosis, pulmonary	129
Malaria	1	Tuberculosis, other forms	23
Measles	708	Typhoid	8
Mumps	91	Whooping cough .	71

WEEK ENDING JULY 1, 1922.

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis . .	3	Ophthalmia neonatorum	16
Chicken-pox	30	Pneumonia, lobar . .	16
Diphtheria	95	Scarlet fever	93
Dog-bite requiring anti-rabic treatment . . .	12	Septic sore throat . .	4
Encephalitis lethargica .	1	Syphilis	36
Epidemic cerebrospinal meningitis	2	Suppurative conjunctivitis	5
German measles . . .	5	Trachoma	2
Gonorrhea	78	Tuberculosis, pulmonary	130
Influenza	4	Tuberculosis, other forms	21
Malaria	4	Typhoid	8
Measles	521	Whooping cough . .	101
Mumps	54		

WEEK ENDING JULY 8, 1922.

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis . .	2	Pneumonia, lobar . .	20
Chicken-pox	71	Scarlet fever	56
Diphtheria	100	Septic sore throat . .	1
Dog-bite requiring anti-rabic treatment . . .	10	Syphilis	35
Encephalitis lethargica .	2	Suppurative conjunctivitis . .	11
German measles . . .	4	Tetanus	1
Gonorrhea	68	Trachoma	2
Influenza	1	Tuberculosis, pulmonary	106
Malaria	2	Tuberculosis, other forms	22
Measles	458	Typhoid	12
Mumps	41	Whooping cough . .	60
Ophthalmia neonatorum . .	3		

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THE EFFECT ON HEALTH OF ILLUMINATING OR FUEL GAS.

It was formerly contended that the burning of illuminating or fuel gas in living rooms caused an appreciable contamination of the air. This impression persists with some persons at the present time, for the products of combustion are supposed to be poisonous to some extent.

In order to explain the facts relating to the dangers of illuminating gas, Dr. Joseph A. Shears, the sanitary expert of the Department of Health of New York City, has rendered a report which has been published in the *Bulletin* of the department under date of June 24, 1922. This study was inspired by advertisements of a gas company recommending that gas water heaters should be connected to a flue. So far as the toxicity of unburned gas is concerned there is agreement, and the danger of the escape of such gas is quite generally understood, so that all measures which may be employed to prevent such escape or ways for its exit without vitiating the atmosphere are important. So far as the other phase, that of suspected deleterious contaminations of the air, is concerned, it may be surprising to some to learn that carefully conducted experiments tend to show that no damage results from burning gas in apartments occupied by human beings, but on the contrary the quality of the air is improved.

Dr. Shears states that "the combustion of illuminating gas produces, from a chemical standpoint, four different effects on the air taken from a room, mixed with the gas in the burner and discharged back into the room.

"First: The amount of carbon dioxide is increased.

"Second: The amount of oxygen is reduced.
"Third: A very small amount of sulphur dioxide is added.

"Fourth: Dust and bacteria are removed by incineration."

In addition to the chemical action resulting from the union of oxygen with the gas elements, the circulation of air is accelerated and ventilation increased, because the movement of the heated air produces an unbalanced pressure from outside which tends to draw fresh air in through crevices, joints and other openings in addition, to some extent, to that passing through the walls. The heated air in the upper portions of the room escapes in the same ways.

The unhealthful contamination of air in living rooms is usually made up of the excretions from the lungs and skin of the occupants and only to a minor degree by the products of combustion. Excretions are laden with bacteria and decomposing organic matter. It is claimed that exhalations from the lungs account to a large degree for the discomfort felt by occupants of poorly ventilated rooms. The stuffiness is usually attributed to carbonic acid gas, but this gas is found in the purest air, amounting to about four parts in 10,000, and the amount must be increased up to more than 225 parts per 10,000 before the ill effects are produced. Not more than 20 parts in 10,000 are found in interiors usually. For experimental purposes 50 parts in 10,000 have been employed in studying the effect of this contamination, but this was accomplished only with difficulty, for the gas is diffusible. It is therefore contended that the presence of carbonic acid gas is important only so far as it may be an index of other contaminations, for 15 parts in an atmosphere vitiated by human respiration indicates definite pollutions by organic matter. The experiment of Dr. Angus Smith, who shut himself in an air-tight chamber with a lighted candle, and even after the candle failed to burn and 229 parts of CO₂ per 10,000 was developed, felt no ill effect, is quoted, and of Pettenkoffer, who found that 100 parts of carbon monoxide in 10,000 parts of air was not injurious to human beings, while one-tenth of this amount of carbon dioxide derived from lungs and exhalations made the air thus contaminated unfit for human use, both conclusions tending to show that the combustion of gas as ordinarily employed has no bad effect on occupants of rooms.

In comparing gas with electric illumination, Dr. Rideal's tests are quoted, which purport to show that under the influence of equal candle power lamps, electricity causes much more eye strain than gas illumination by mantle fixtures.

The thesis is well presented and puts in plain language facts which should be known by the laity. Apparently electricity has no advantage over gas except that unburned gas is poisonous, so that all those forms of gas burners which may, either through carelessness or other reasons, send unburned gas into a room should be connected with a flue, for pilot lights may go out or a draught may extinguish the flame, or the fixture may be defective.

The question of flue connecting is the subject of an investigation by the American Gas Association and its findings will be of great interest. The Department of Health has postponed action, until this report is available, any further than offering the recommendations that no hot water heaters be permitted in bath or other confined rooms unless the same are flue connected and all automatic hot water heaters be flue connected.

ARE THE MEDICAL JOURNALS OF THIS COUNTRY DOMINATED BY THE AMERICAN MEDICAL ASSOCIATION?

In the June issue of the *Illinois Medical Journal* an article credited to *American Medicine* is published, in which it is alleged that a power designated as a star chamber organization is dominating the medical press of the country.

The statement follows that "The fact remains that the medical press of this country is impersonal and timid."

Although the American Medical Association is not named, the description of the dominating organization clearly shows that the A. M. A. is meant.

It is often profitable to see ourselves as others see us and some editors would like to know how our brothers classify us.

Will the *Illinois Journal* and *American Medicine* come more into the open and give the rest of us our rating?

BULLETIN OF THE AYER CLINICAL LABORATORY OF THE PENNSYLVANIA HOSPITAL.

This publication has been suspended for eleven years. It is expected that the series now under way will be permanent.

The first article is contributed by Allen G. Ellis, M.S., M.D., under the title, "Amebiasis." This disease is endemic as far north as Baltimore and Washington and occasionally cases are found in the northern tier of states. The contention is made that all cases of dysentery should call for examination of the patient's stools. House epidemics are not uncommon and are due to contact, flies being the important agent.

Specimens from 8,092 persons in twenty-two states and the District of Columbia showed in-

fection by *Entamoeba histolytica* in three hundred and thirty-three persons representing all parts of the country.

Dobell's conclusions that there are six species of amebae living in man but only one, *E. histolytica*, is pathogenic is referred to, and also his statement that evidence of *E. gingivalis* as a cause of pyorrhoecia alveolaris is not conclusive. The technical details for the laboratory investigation are given.

Emetin seems to be generally employed in the treatment of the disease and in advanced severe cases the drug has been given intravenously one-half to one grain in 5 c.c. normal salt solution. Children under eight years of age bear one sixth of a grain. It may be necessary to give twelve injections daily. This drug may be used in combination with bismuth iodid by mouth for twelve days. Others use a large dose of bismuth subnitrate by mouth in addition to the intravenous use of emetin.

Several other articles are of interest especially to pathologists. It is hoped that this publication will be continued.

REPORTING DISEASES TO THE HEALTH DEPARTMENT.

The New York City Health Department publishes the report of the conviction of a physician in the Borough of Richmond for failure to report a case of pneumonia. This physician was obliged to pay a fine in addition to the loss of time incident to attendance at court. It would be interesting to know all the circumstances surrounding this court proceeding. If the physician was a defiant offender, sentiment would be in favor of the action taken by the prosecuting officer, but the failure to report a given case may not always mean intentional disregard of the sanitary code. There are times when the strain of work, fatigue and anxiety lead one to forget the commonly accepted responsibility of coöperating with health officials. The report of a prosecution may have a very useful effect in impressing upon physicians the necessity of compliance with health regulations.

In Massachusetts matters of this sort are usually dealt with diplomatically and extreme measures have not often been employed unless the attitude of the offender seemed to indicate a belligerent spirit, for the coöperation of physicians is sought because one may be of great assistance in the maintenance of barriers against the extension of disease. Physicians as a class are not inclined to live according to the letter of the law. They cheerfully render every possible aid, when appealed to, but if a zealous official should try to find occasion for a suit, it is probable that intentional violations of health regulations are sometimes committed by well intentioned doctors.

Practically every operator of a motor vehicle could be convicted in court sooner or later if the letter of the law should be invoked, but police departments are growing more and more discriminating. The same charity should be exercised by officers having charge of the enforcement of regulations which apply to health.

OPINIONS EXPRESSED IN THE INDIANA JOURNAL.

THE *Journal of the Indiana State Medical Association*, June issue, criticises the University of Cincinnati for allowing the surgeons on the staff of the hospital to charge fees for treating private patients in a special ward. The contention is made that a hospital in connection with a university should be used solely for teaching purposes, and that since there may be a sufficient supply of indigent patients for teaching purposes, the use of this hospital for the treatment of paying patients is not fair to the profession at large.

In the same journal it is stated that chiropractors have spent several thousand dollars per year for some time in legislative and propaganda work in Indiana, but the State Society has spent less than one hundred dollars per year through its committee on legislation. The conditions are referred to as "deplorable," and the inference is plain that the editor believes that the expenditure of money has secured favorable returns for the chiropractors.

POLLUTED DRINKING WATER.

Now that the vacation period is on, the usual warning about the danger of polluted drinking water is in order. Although the knowledge that typhoid fever is more often the disease of districts without sewers, visitors to country places occasionally return to urban homes with typhoid fever. Many persons traveling in foreign countries arrange to have antityphoid treatment before leaving home, but visitors to remote localities in our own country are less apt to secure immunity. It happens only rarely that antityphoid treatment fails to protect, but a comparatively few cases of typhoid have been reported even after treatment. Travellers by motor can never be sure that the water supply of a wayside inn, tearoom or inviting spring is wholesome, and milk may have been infected by a carrier. Patients should be warned about water and milk whenever the physician has an opportunity to give advice. If doubtful water is treated with freshly prepared calcium chloride there is practically no danger of contracting typhoid.

The Chicago Department of Health furnishes tablets containing 20 to 30 milligrams of chloride to those who apply for them. One of these

tablets is to be dissolved in a quart of water. This solution will retain its potency for about a week. When using, one teaspoonful of the clear solution may be added to a glass of drinking water and allowed to stand for five minutes. If the water is especially doubtful, two teaspoonfuls may be used. The taste is not objectionable, but taste and the slight trouble is of very little consequence as compared with the suffering, expense and danger incident to typhoid fever, or even an acute gastro-intestinal disturbance.

Dr. Hermann M. Biggs, in a five minutes' health talk sent out by radio, advises that campers boil the day's supply of water and keep it in bottles. Calcium chloride was used in the treatment of drinking water to some extent in France during the war. One pharmaceutical house is reported as manufacturing calcium chloride tablets.

Milk is a somewhat common culture medium for almost all pathogenic germs, and there may be a few people who for the moment forget that boiling destroys the danger of infection.

MEDICAL WORK OF THE UNITED FRUIT COMPANY.

THE Tenth Annual Report of the Medical Department of the United Fruit Company for the year 1921 furnishes much valuable information about the diseases found in the parts of the West Indies and Central America where this company operates, and in addition the report contains an appendix dealing with maintenance of health for the guidance of employees of the company.

The appendix covers eleven pages, is written in direct, non-technical language, and should be very helpful in obtaining for the medical staff of the company the intelligent co-operation of the other employees, without which the fullest benefits of sanitation could not be obtained.

The advice given is of a very practical character. It deals with most of the important medical aspects of life in the tropics, includes preparation for undertaking employment in the tropics, and suitable location for the dwelling in a tropical environment. It describes the desirable type of building, sanitation of the premises, sewage disposal, the means of obtaining safe drinking water, discusses food, clothing and bathing, and gives information about the means of preventing serious diseases and of escaping exposure to insects which might otherwise cause suffering or introduce disease.

In the Letter of Transmittal from Dr. Deeks, general manager of the medical department, it is pointed out that malaria is the most prominent cause of morbidity, but that great progress is being made year by year in sanitary measures for its prevention. Draining, filling, the use

of larvicides, screening of dwellings and the administration of prophylactic quinine are among the methods used, and it is stated that gratifying results have been obtained in the divisions where quinine prophylaxis has been used systematically.

The use of paris green as a larvicide by the method of Dr. Barber of the U. S. Public Health Service has been instituted and will be reported upon later.

At Puerto Castilla in Honduras, where the buildings of the company stood on swampy ground, pure water has been piped in from the mountains and dredging and filling operations have changed the character of the environment, which was exceedingly bad, so that now this port is said to be as sanitary as any in the tropics. The original condition of the locality and its appearance after completion of the work are shown in photographic reproductions.

Alastrim has been practically eliminated by systematic vaccination. All employees have been examined for hookworm and those infected have been treated until cured. Substantial progress has been made in combating venereal diseases as well.

The wise practice of making a thorough physical examination of all prospective employees and of all officers and members of the crews of steamships operated by the company, at the commencement of each voyage, has been continued. At Preston and Limon, where hospital accommodation was insufficient, new hospitals of excellent construction have been built and put into operation within the year.

The medical department consists of port medical officers in New York, New Orleans, Boston and Cristobal, and of hospital and dispensary personnel in the seven operating divisions of the company and those attached to two railroad companies as well.

Some idea of the magnitude of the work can be gained from the figures which follow. The company has under cultivation 395,000 acres of land and undertakes itself to care for the people living in these cultivated areas. It treats not only its employees and their families, but also a considerable number of other individuals living in the same localities who are in no way connected with the company but who would be unable otherwise to obtain either medical advice or hospital treatment.

A comprehensive series of tables gives statistical information about the medical work done in each of the divisions, on the passenger steamers and in the ports. These tables are well worthy of careful study. They show that more than 208,000 cases were treated by the nine medical districts in the tropics with 1050 deaths, a mortality of about five per 1000, or 0.5 per cent. When figured on the basis of the number of persons dependent on the company, the aver-

age rate is 7.44 per 1000, but it varies from 2.75 to 12.62 in different divisions. The average rate compares very favorably with that of the Canal Zone, which, during the ten-year period from 1911 to 1920 inclusive has been 12.49 per 1000 population,* and with rates for large cities in the United States; for example, the average for the ten-year period from 1911 to 1920 inclusive in Boston has been 16.97 per 1000 population.†

The causes of the great differences in the rates for the various medical districts of the company have doubtless been the subject of special study by Dr. Deeks. It seems probable that the rates have been influenced by factors which do not appear in the report. Similarly, the tables show other prominent figures which raise questions of interest.

The table of deaths by disease shows in a striking manner that persons in the tropics are by no means free from diseases prevalent in the temperate zone. For example, the maladies of the respiratory tract taken together, but excluding tuberculosis and cancer, caused 254 deaths, as compared with 167 for all types of malaria. In the former group 157 deaths are attributed to lobar pneumonia, a figure not far below that for malaria. The varieties of tuberculosis account for 91 deaths and acute and chronic nephritis for 86 more.

The relatively small proportion of deaths from infectious intestinal disease, *i.e.*, 24 for typhoid and 33 for all kinds of dysentery, points to good sanitary arrangements. On the other hand, the morbidity from malaria is still high and it is to be expected that subsequent years will show a marked reduction resulting from the campaign being waged against this disease.

The United Fruit Company is to be congratulated upon the showing of its medical department and upon its enlightened policy of working for the prevention of disease among its employees. The company has set a standard which less prosperous business organizations may find it difficult to attain, but health is a fundamental requirement for the worker and failure to appreciate this fact and to guard against illness has, doubtless, ruined many an enterprise in the tropics.

INFANT MORTALITY.

THE American Child Hygiene Association has published its statistical report of infant mortality in cities of over 10,000 population in continental United States. Its first report for 1919 covered 269 cities, in the second report for 1920 519 cities in the death registration were covered, and this last report covers 573 cities with a population of 40,434,121.

*Canal Zone Department of Health Annual Report, 1920.

†Annual Reports of the Health Department of the City of Boston.

There are 664 cities of 10,000 or over in the death registration area, so that the report of 1921 covers 89 percent. of the cities and 94.4 percent. of the population of the death registration area. Cambridge and Lawrence of this state do not appear in the returns.

The figures of the Massachusetts cities from which the statistics are available are as follows:

City.	Population.	General Death Rate All Ages for 1921.	Infant Mortality Rate, 1920.	1921.
Beverly	22,561	10.4	54	39
Brookline	37,748	10.2	66	41
Winchester*	10,485	12.1	64	41
Melrose	18,204	11.1	76	45
Greenfield	15,402	11.1	87	51
Newton	46,054	9.9	64	51
Winthrop	15,455	8.9	40	52
Southbridge	14,245	12.1	58	53
Chelsea	43,184	12.7	63	54
Leominster	19,744	11.8	69	54
Watertown	21,457	7.8	73	55
Attleborough	19,731	13.7	67	59
Northampton (2)	21,351	18.7	86	60
Webster	13,258	11.9	56	61
Newburyport	15,018	14.4	85	62
Arlington	18,665	12.9	67	63
Woburn	16,574	10.7	78	63
Brockton	66,254	10.1	71	64
Braintree*	10,589	15.2	81	66
Northbridge*	10,174	10.2	99	68
Pittsfield	41,763	12.9	65	68
Marlborough	15,028	12.3	69	69
Springfield	129,614	11.3	85	69
North Adams	22,282	12.1	70	72
Lynn	99,148	11.1	82	73
Salem	42,529	13.9	85	74
Haverhill	53,884	12.0	92	75
Worcester (2)	179,754	12.9	85	76
Boston	748,000	13.5	101	77
Somerville	93,091	10.2	80	77
Danvers* (2)	11,108	25.9	65	79
Gardner	16,971	13.4	102	86
Saugus*	10,874	13.4	83	92
Holyoke (3)	60,203	12.3	117	92
Clinton	12,979	13.3	116	95
Lowell	112,759	12.9	135	95
New Bedford	121,217	11.0	122	96
Easthampton*	11,261	12.9	91	101
Plymouth	13,045	17.1	147	101
Fall River	120,485	14.2	129	113

The death rate in those places where there are institutions, which add materially to the figures, should be considered in any interpretation: for, taking Danvers, for example, with the large insane hospital and the comparatively small population, the figures which give the highest death rate for all ages should be construed accordingly. Holyoke is reported to have an institution which adds to the infant mortality. All co-ordinate influences should be studied in any analysis made. It would be interesting to have the Fall River authorities explain the reasons for the unusually high infant mortality rate.

*Places not listed as over 10,000 population in 1920 Census. Early statistics often misleading.

(2) Important State institutions located here influencing crude death rate.

(3) Large institution for infants, drawing from all parts of State, located here, and materially affecting infant mortality rate.

Plymouth, too, has had an abnormally high rate for several years.

Although those in the group included in the low rates may feel complacent there may be reasons for this fortunate state of affairs and these cities may be under obligation to show the others how the results are obtained.

The impressive showing presented by these figures is that there has been a marked average improvement all over the state and Public Health officials should feel encouraged. In all probability the great factor in promoting better conditions lies in the general dissemination of information relating to the causes of infant mortality, and if this is true, there is reason to believe that the people are absorbing the advice on health matters which officials have been sending broadcast during recent years. It is reasonable to believe that still better conditions are to be realized in the future through the application of practices advised by our leaders in health matters.

NEWS ITEMS.

DR. LELAND FRENCH has been appointed District Health Officer in the Berkshire District.

THE REGULAR BI-MONTHLY MEETING OF THE FRANKLIN DISTRICT MEDICAL SOCIETY was held at the Weldon, Greenfield, Tuesday, July 11, 1922, at 11 A. M. Programme: "What the American Medical Society Is and What It Stands For," Dr. H. G. Stetson, Greenfield; "Recent Observations while with the Mayo Brothers," Dr. C. L. Upton, Shelburne Falls.

DR. HAVEN EMERSON has been appointed professor of public health and administration in the College of Physicians and Surgeons, Columbia University, and given the task of working out a plan for the organization of the Institute of Public Health established by the bequest of the late Joseph A. DeLamar.—*Science*, June 30, 1922.

DR. REID HUNT of the Harvard Medical School has been elected on the editorial board for *Physiological Reviews* for 1922.—*Science*, June 30, 1922.

DR. WILLIAM D. WHEELER of Revere, Mass., is leaving for New York to take up an intensive course of training in dermatology and syphilology at the Skin and Cancer Hospital. Dr. Wheeler is junior assistant on the staff of the skin department of the Boston Dispensary.

DR. JOHN LORENZO HILFERN resigned as dean of the Syracuse University School of Medicine on June 15. This resignation terminates the connection which Dr. Helfern has held with the

teaching staff of the medical school for forty years, during fifteen of which he has served as dean. Dr. Heffron was made dean emeritus.—*Science*.

At the time of the celebration of the centennial of Pasteur's birth, in Strasbough, a congress of hygiene and bacteriology will be held for discussion of questions relating to disease. In order to show the sympathy of Great Britain with the projects of the French committee, a British committee composed of the following members has been formed: Sir Charles Sherrington, chairman; A. Chaston, H. E. Field, Professor Percy R. Frankland, Sir John M'Fadyean, Professor C. J. Martin, Sir W. J. Pope, Sir James Walker and Sir Almroth Wright.—*Science*.

On June 4, at the special invitation of the governors and the medical school, Professor Harvey Cushing took over the directorship of the surgical unit of St. Bartholomew's Hospital and replaced the director, Mr. Gask, for ten days. The compliment was, as it were, a return for a like compliment paid to Mr. Gask last year, when he acted as temporary chief of the Peter Bent Brigham Hospital, Boston, to which Dr. Harvey Cushing, as professor of surgery at Harvard, is surgeon.—*Science*.

DURING June a nutrition institute was held at Lincoln, Nebraska, and courses on the work of the nutrition class were given at the Summer School of Education conducted by the Cleveland Public Schools. At the latter session there were about forty workers in training preparing for extensions in this work in the Cleveland schools. The Lincoln Institute was the first called by the Department of Medical Inspection in a city. Dr. Katherine Wolff has organized this department effectively and is planning an attack upon malnutrition in the schools. About one hundred were in attendance, including a number of physicians. One of these, Dr. Margaret W. Koenig, has just become a member of the staff of the Children's Bureau at Washington and will begin her government service in the state of Tennessee. A school nurse from South Dakota was present who is doing remarkable work in her district. She is now planning for a traveling clinic which will take care of adenoid and tonsil operations. The work in this institute was recognized by the University of Nebraska and full credit is given for courses taken in it. Dr. William R. P. Emerson gave addresses before the Rotary and Pathfinders' Clubs of Lincoln and a large public meeting as well as dinners and conferences of representatives of the leading child-helping organizations, including the Associated Charities and the Juvenile Court, the educational executives of the university and the public schools, members of the medical and dental associations. In September an institute will be

given in Hartford, under the direction of Nutrition Clinics for Delicate Children, followed by others in Poughkeepsie, Battle Creek, Denver and Honolulu.

OPENINGS FOR JUNIOR MEDICAL OFFICERS IN GOVERNMENT SERVICE.—The United States Civil Service Commission states that there is urgent need for eligibles to fill positions of junior medical officer in the Indian Service and the Coast and Geodetic Survey and that the Commission will receive and rate applications until further notice. Competitors will not be required to report at any place for a written examination, but will be rated upon the subjects of education, training and experience as shown by their applications and corroborative evidence. Full information concerning salaries, etc., and application blanks may be secured from the United States Civil Service Commission, Washington, D. C., or the board of civil service examiners at the postoffice or customhouse in any city.

DEATH RATE IN BOSTON.—During the week ending July 1, 1922, the number of deaths reported was 178, against 150 last year, with a rate of 12.11. There were 15 deaths under one year of age, against 16 last year. The number of cases of principal reportable diseases were: Diphtheria 54, scarlet-fever 21, measles 144, whooping-cough 10, typhoid fever 1, tuberculosis 18. Included in the above were the following cases of non-residents: Diphtheria 7, scarlet-fever 2, measles 1, tuberculosis 1. Total deaths from these diseases were: Diphtheria 4, scarlet-fever 1, measles 1, tuberculosis 16. Included in the above was the following case of a non-resident: Diphtheria 1.

DEATH RATE IN BOSTON.—During the week ending July 8, 1922, the number of deaths reported was 180, against 149 last year, with a rate of 12.29. There were 25 deaths under one year of age, against 25 last year. The number of cases of principal reportable diseases were: Diphtheria, 44; whooping cough, 21; scarlet fever, 21; typhoid fever, 1; measles, 98; tuberculosis, 40. Included in the above were the following cases of non-residents: Scarlet fever, 4; tuberculosis, 2. Total deaths from these diseases were: Diphtheria, 3; tuberculosis, 21. Included in the above was the following case of a non-resident: Tuberculosis, 1.

DR. ROBERT RICE, a fellow of the Massachusetts Medical Society since 1920, died at the Hale Hospital, Haverhill, July 9, 1922, at the age of fifty-two.

He was born in Scotland, coming to this country twenty-five years ago. He graduated from the Hahnemann Medical College and Hospital of Philadelphia in 1908 and settled in Haverhill, where he did a general practice and served on the staff of the hospital in which he died.

He is survived by his widow.

The Boston Medical and Surgical Journal

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Original Articles.

THE VALUE OF BASAL METABOLISM DETERMINATIONS IN THE DIAGNOSIS AND TREATMENT OF HYPERTHYROIDISM.*

BY HENRY F. STOLL, M.D., HARTFORD, CONN.

Assistant Visiting Physician and Syphilologist to the Hartford Hospital; Visiting Physician to the Municipal Hospital.

At a time when so many voices are heard decrying the prominence given today to laboratory diagnoses and the seeming decadence of careful clinical observation, one must examine with great care each newly advocated diagnostic method. One may postulate three requisites that should be fulfilled before a new procedure is accepted: (1) Is there need of such a test? (2) Is the proposed test trustworthy? (3) Is it sufficiently simple of performance to make it generally available? Applying these criteria to the subject under discussion, is a test for the detection of thyroid dysfunction needed? For years physicians the world over have recognized hyperthyroidism by its clinical manifestations alone, and a fourth-year medical school student can make a diagnosis of thyrotoxicosis in the patient with protruding

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eyes, tremor, rapid pulse and struma. Why employ a test requiring considerable time and a very careful technique? This question is very pertinent when a man of Crile's standing and large experience with hyperthyroid cases finds his clinical judgment the best guide.¹ But do most physicians possess such diagnostic acumen? Plummer² says: "The phenomena of mild exophthalmic goitre are so much like the psychoneurotic manifestations due to lack of assurance, that the thyroid is frequently resected for the latter condition." A well-known internist, after studying a group of so-called "neuro-circulatory asthenia" patients in the army, was convinced that the condition was due to over-functioning of the thyroid gland. The basal metabolism in a similar group, however, was subsequently found to be normal, thus excluding hyperthyroidism.

It is the border-line case, not the classical picture that puzzles us. Particularly difficult is it to decide whether the symptoms in a patient with slight enlargement of the thyroid are due to "nerves" or to increased secretion of the thyroid. Such a case was Mrs. S., aged 39, who was referred to me in June, 1921, to determine whether she had hyperthyroidism. Nine months previously she first noticed that the thyroid was slightly enlarged. One or two friends also commented on this and she immediately began to worry. Her sister noticed a variation in size at different times. Mrs. S. had always been of a nervous temperament and perspired rather easily. There had been no loss of weight re-

*Read before the One Hundred Thirtieth Annual Meeting of the Hartford County Medical Society.

cently; in fact, she had gained slightly. Of late there had been slight insomnia because she feared she was developing a goitre. The patient was a large, well-nourished woman, with moderate flushing of the skin and slight general enlargement of the thyroid. Pulse 108, no tremor, exophthalmos, thrill or bruit. I felt that the nervousness was due more to worry over the thyroid enlargement than to the over-functioning of the gland. I saw her occasionally through the summer and fall; the nervousness slightly increased, she began to tire easily and her appetite was not as good. Her pulse was about 90 most of the time. Early in October the basal metabolism was plus 26 per cent. (Chart 1.) Radium was not applied by Dr. Heublein until nearly two months later. A slight systemic reaction followed and some increased swelling of the gland. Three weeks later she was no better and the basal metabolism at this time gave practically the same result, plus 25 per cent. One month later, at which time there was some clinical improvement manifest, it had fallen to plus 20 per cent. and six weeks later, at which time the patient was better "in all ways," it was plus 16 per cent. Though the size of the gland had not materially changed, she was much stronger, breathed more easily, slept better, was much less nervous and perspired less easily.

It is often difficult in the presence of an adenoma that has persisted for years, to determine whether it plays any part in the symptoms. At the Mayo Clinic it was found that the adenomatous goitre did not cause toxic symptoms till the latter half of the third decade and on an average seventeen and one-half years after the appearance of the goitre.

Mrs. C., a woman of 54, was first seen Nov. 3rd, 1921. She had had a large adenoma of the thyroid for a number of years. Several months previously she was examined by an internist of ability, who did not believe there was any relationship between her nervousness and weakness and the thyroid. Very soon thereafter she was seen by a surgeon who has had considerable experience with hyperthyroid cases. He not only thought she was suffering from a toxic adenoma, but he considered her too toxic even for ligation, and advised radium. This was applied in August, and again in October, 1921, with some clinical improvement, but no basal metabolism estimation was made until November 3rd. At this time, notwithstanding two radium treatments, the basal metabolism was plus 35 per cent. Following the radium she improved considerably, but she still suffered from palpitation, nervousness, weakness and a rapid pulse, and was much below her normal weight. Six weeks later (Dec. 21st), there was little change, either in her general condition or her metabolic rate, which was plus 22

per cent. This case illustrates that a perfectly well behaved adenoma may, without apparent provocation, suddenly begin to flood the system with an excess of thyroxin. If at the inception of symptoms the basal metabolism be ascertained, treatment can be instituted before the irreparable damage present in the case just recounted takes place. Like tuberculosis, little can be accomplished when the diagnosis can be made by the man on the street.

Mrs. W., a widow, aged 54, complained of dyspnoea and palpitation. She was referred to me because her physician thought that possibly she might have hyperthyroidism as she had a moderate enlargement of the thyroid and a slightly elevated blood pressure. Her basal metabolism, however, was normal, suggesting that possibly digitalis rather than radiation of her thyroid was indicated. Even if the basal metabolism had been moderately increased in this case it would have been impossible on this evidence to incriminate the thyroid, as cardio-renal patients with dyspnoea often show an increased rate.

From the cases already cited it is apparent that the estimation of the activity of the thyroid by clinical means alone is frequently erroneous. Even when the clinical diagnosis is unquestioned, the problem is but half solved. How toxic is the patient? Shall lobectomy be performed or would a preliminary ligation or, perhaps, x-ray or radium be safer? These questions the surgeon familiar with such cases can usually answer. All appreciate that rapid loss of weight, a rapid fibrillating heart and diarrhoea indicate a severe toxæmia; but there are border-line cases where even the man of large experience is sometimes sorely puzzled. If the degree of toxæmia is underestimated, a fatality may ensue. As an aid in estimating the degree of toxicity basal metabolism determinations have proven of a great deal of help. Pemberton³ states that "the degree of loss of strength and weight, and the height of the basal metabolic rate, taken separately, are only relative criteria of the operability of patients with exophthalmic goitre; but taken together, and in relation to the phase of the disease, they become the basis on which an opinion is formed." Leahy⁴ believes that "basal metabolism as a diagnostic measure, although subject to error in estimation and interpretation, is probably more constantly reliable than many of our other laboratory measures." The clinical picture should always be studied in conjunction with the basal metabolic rate as there may be certain symptoms that stamp the case as a poor risk, though the metabolic rate may suggest only a mild toxæmia. In such a case, to disregard the symptoms and do a lobectomy because the metabolic rate was below a certain figure would be to

court disaster. The basal metabolic rate alone, therefore, will not guarantee the safety of any surgical procedure. Leahy feels, however, that when there is no clinical evidence of severe toxicity, and no complication (heart and kidney), partial lobectomy, unpreceded by ligation, may be undertaken when the basal metabolism is not over plus 35 per cent. Metabolic rates between plus 35 per cent. and plus 50 per cent. require judgment, based upon a large experience, to decide between ligation and partial lobectomy.

With rates above 50 per cent. Leahy considers primary ligation safest. When the B. M. is over plus 75, extreme caution in any surgical procedure is demanded. A progressively increasing B. M. rate is indicative of a so-called crisis and is a contraindication to operation. In deciding as to the operability of toxic goitres, at the Mayo Clinic, the greatest weight is attached to three things, viz., the loss of strength, loss of weight, and the metabolic rate. The average increase in the metabolic rate in cases suitable for a primary lobectomy was plus 36; of the groups requiring a primary ligation the average rate was plus 51 per cent. Those patients who, for some reason or other, were deemed not suited for immediate operation, and in whom two ligations and a rest period preceded lobectomy, had an average B. M. of plus 63 per cent. In estimating the degree of loss of strength, the use of the coefficients, 1, 2, 3, and 4, has been suggested. For reasons hereinafter explained, I would suggest 10, 20, 30, and 40 be used to indicate the loss of strength. In expressing loss of strength numerically, it is impossible to eliminate the element of personal equation, yet this can be minimized to a large degree if it be assumed that loss of strength 40 signifies confinement to bed; loss of strength 30, ability to be up though not able to work, and with great loss of strength in the quadriceps muscles manifest especially in stair-climbing; loss of strength 20, the ability to work, but with great exhaustion; loss of strength 10, slight but definite increase in fatigability. In the majority of cases the degree of the loss of strength, loss of weight, and the increase in metabolic rate roughly agree. When this is not the case the deviating factor is often offset by one or both of the others. For example, patients are occasionally seen who seem more toxic than the B. M. would indicate. In such instances the loss of strength and loss of weight are usually extreme.

If in some way it were possible to obtain a numerical expression of the combined loss of weight, loss of strength, and the increased metabolic rate, the result might be more accurate than the B. M. rate alone. This might be referred to as the total toxicity. Applying this to Pemberton's averages (Chart 2), and mov-

ing his decimal point one place to the right, under loss of strength, to comply with the plan suggested above, we then add the loss of strength, loss of weight, and increased metabolic rates together. It is then apparent that primary resection was done when the total toxicity averaged 64; that ligation was the operation of choice when the total toxicity rose to 80, but that when it exceeded 100 two ligations and a rest period preceded removal of the gland. Theoretically, such a formula might be of value unless the numerical expression of loss of weight would prove too variable. It at least would tend to focus more attention on the importance of loss of weight and strength in determining operability.

Two cases, seen recently, demonstrate that the metabolic rate may give a truer idea of the gravity of the case than the clinical picture. Mrs. G., aged 39, first noticed enlargement of the thyroid 14 years ago, during her first pregnancy at about the sixth month. The swelling subsided after confinement to a considerable degree. This was repeated with each of the three succeeding pregnancies. Since the last there has been a well-marked adenoma, and she had never been quite as well, though toxic symptoms had been present only six months. During the nine days patient was awaiting operation, the pulse was rarely over 90 and usually between 80 and 85. The B. M. was plus 64 per cent.; as this was higher than her general picture suggested, and as the results of ligation in toxic adenoma are disappointing, lobectomy was undertaken, but the patient died before its completion. Had we determined her "total toxicity" (64 plus 20 plus 25), we would have realized that she was in the group in which any operation is extremely hazardous.

Mrs. Z., aged 40, had been in her usual health till 8 weeks before, when vomiting began. For the same period she had suffered from a frontal headache. She had had marked trembling of the whole body for three weeks, especially when nervous. For six years she had had a goitre. The patient was very nervous and excited. There were no eye signs. The face appeared rather puffy and "myxedematous." The right lobe of the thyroid was about the size of "turkey's egg," the isthmus and left lobe were apparently not enlarged. There was marked tremor of the hands. Unlike the preceding case, she was very excitable and ran an erratic pulse. It was not possible to ascertain the loss of weight nor to estimate the loss of strength. The B. M. done by Dr. Whittles and Miss Flynn, October 24, 1921, was plus 57 per cent. Approximately two weeks later it was repeated by Dr. Wentworth and again found plus 57 per cent. Ten days later a rather extensive resection was performed, following which the patient experienced a severe

reaction from which she died the next day.

The claim has been made that the pulse rate gives as accurate a picture of the degree of toxicity as the basal metabolism. The charts of these two cases demonstrate that this is not always true. In fact, these cases were quite different clinically, though in each the basal metabolic rate was considerably higher than that obtained in cases generally considered as suitable for primary lobectomy. (Chart 3.)

The toxic patient, in whom a primary ligation is done, will in all probability need further surgery; but when? Shall we tell him to return "in a couple of months," or take the basal metabolism every two weeks, and advise the next operation when the fall in rate ceases?

Is the test referred to as the "Basal Metabolism test" trustworthy? It is only a short time since we were told that excessive thyroid secretion could be determined by the injection of epinephrin and by study of the blood sugar curve following the ingestion of a certain amount of glucose. These tests have proven disappointing. On what sort of a foundation does the test under discussion today rest?

Many years ago it was established that the end-result of all bodily activities was the production of heat. It was also determined that under identical basal conditions normal individuals of the same age, sex, and body surface area gave off the same amount of heat.

As the actual measurement of the heat produced was exceedingly complicated, requiring the use of a very large and expensive apparatus, calorimeter, it was quite impractical for general use. Inasmuch as the transformation of muscular and glandular activity into heat depends upon oxidation, the determination of the amount of oxygen consumed in a given period enables one to state at what intensity the body metabolism is taking place. For a number of years, in computing the B. M., the oxygen consumed and the carbon dioxide given off were determined by the method of gas analysis. The technical aspects of this method were so great that it was only carried out in a few of the larger clinics. Thanks to Benedict, a relatively simple and portable apparatus was devised, with which one can quickly and accurately determine the oxygen consumption. Tables have been compiled from which one can easily compute the normal metabolic rate when the height, weight, sex and age are known. The trustworthiness of this method has been thoroughly established, if all the details that experience has shown necessary are carefully carried out. Boothby⁵ warns that "if the conditions for determining a true basal metabolic rate are not obtained or the method of determination is not carried out with the care necessary to eliminate even slight errors, one of the most valuable methods of diagnosis and

classification of disease will fall into discredit from the discordant results obtained."

We may now briefly discuss the last of the three points raised at the beginning of the paper. Is the test sufficiently simple of performance as to make it generally available?

There are several small, easily portable apparatuses on the market that accurately measure oxygen consumption. The Handy-Sanborn was used in all of the tests here reported. Because of the ease with which it can be carried about it may be used equally well in hospital, private home, office or dispensary, providing a rest period of at least one-half hour precedes the test. With very toxic patients, however, the test is better made in the home, or after resting quietly in the hospital, as the exertion of going to the office may increase the rate by over 10 per cent. If very toxic cases are tested in the office they should make the trip by automobile, and rest at least one hour before the test is run. In the very nervous it is advisable to make a "dummy test" the day before the real one, and whenever there is any question about the result, it should be repeated the next day. Concerning the interpretation of results, Benedict⁶ says, "The simplification of the technique is dangerous when it makes it possible for the tyro to secure measurements, which frequently neither he nor his associates are in a position to interpret intelligently, and from which it is possible for him to draw deductions that are not only erroneous, but since they not infrequently make for or against operative procedure, may actually be of serious harm." Continuing, he says, "Unfortunately, the intellectual training of the operator has by no means progressed as rapidly as has the simplification of the technique."

In concluding I will review somewhat in detail the case of Mr. D., as it illustrates the value of B. M. in diagnosis, and as a guide to treatment.

Mr. H. D., aged 45, was first seen September 14, 1921, complaining of being shaky; weakness and trembling. His occupation, that of an insurance agent for an industrial company, necessitated walking several miles each day, and going up and down stairs a great many times. About ten weeks previously he began to feel weak. He continued at work through July, during the exceedingly hot weather, and shortly, in addition to his weakness, began to notice trembling in the legs after climbing stairs. His hands also trembled. He perspired freely, especially about the knees, so much so that his trousers would become wet. As has been stated, the weather at this time was exceedingly hot. His appetite failed and for the past two months he hiccoughed a great deal; the attacks never lasting over three minutes. Recently he had slept poorly. It had been noted by his brother that his complexion was be-

CHART 5.

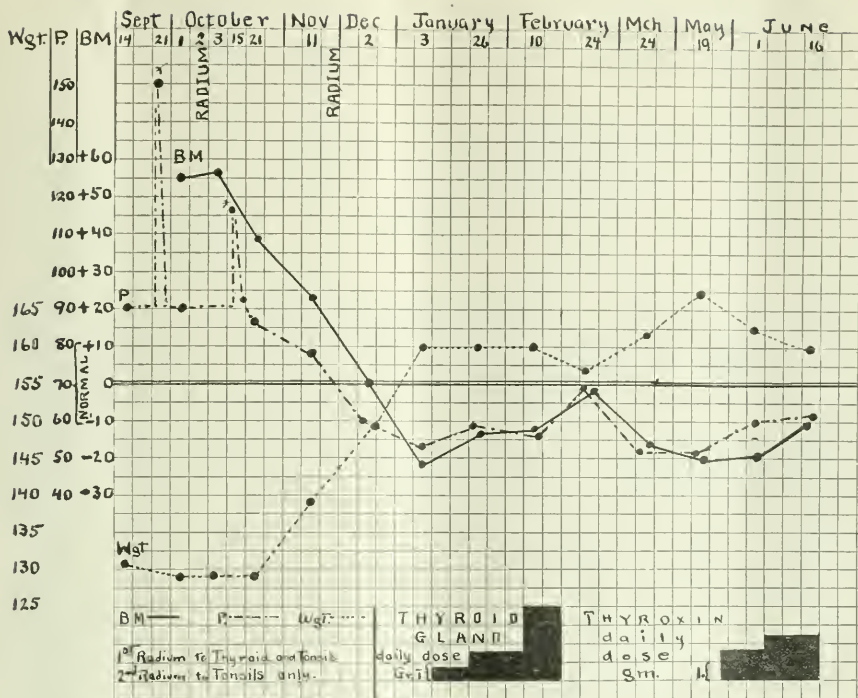
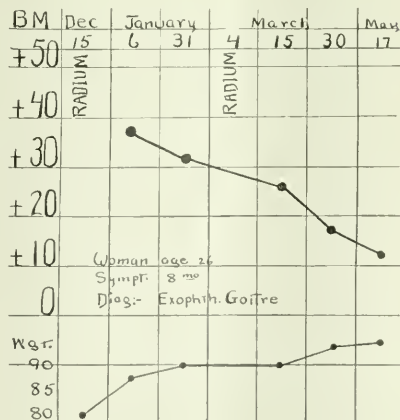
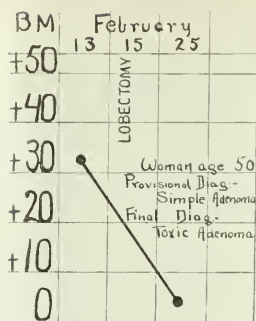


CHART 2.

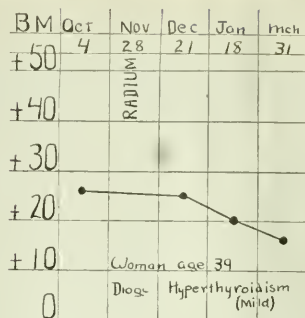
667 Pt's with Exoph. Goitre	Loss Strength	Loss Weight	B.M.	Total Toxicity
Primary Lobectomy	14.	14	36	64
One Ligation	16.5	19	51	86
Two Ligations - Rest - Thyroidectomy	22.	22	63	107

Pemberton
Surgical Management Toxic Goitre; Pemberton J.J.
Boston Med. Surg. Jour.
1922, 8/23 - Vol. 186 - No. 8.





coming muddy. He had lost 16 pounds in a year and during the past three weeks, though eating a good deal, had lost four pounds. For several months he had had nocturnal polyuria (two or three times), and sixteen years previously he was ill with "kidney trouble." The patient looked very ill, his color was rather earthy, his breath fetid; he was very weak and there was coarse tremor of the hands. There was a suggestion of prominence to the eyes, and the right lobe of the thyroid was very slightly enlarged. My attention was particularly focused on the tonsils, which were extraordinarily large and very septic. The day urine 945 c.c., night urine 690 c.c., the specific gravity was not fixed; there was no albumin and an occasional cast. Blood uric acid 7, urea nitrogen 24. The whole picture was thought to be dependent upon his very septic tonsils and secondary kidney damage. Prior to his coming under my observation he was seen by another physician, who suspected an early paralysis agitans, because of his marked tremor and rather expressionless face. His pulse was not especially rapid, 90 per minute, and according to his family physician, it was practically always under 90. The blood pressure, Wassermann, hemoglobin and red count were not remarkable. The leucocytes were 12,000 with 46 per cent. lymphocytes. He was referred to Dr. Warfield T. Longcope. The excitement and fatigue, incident to the trip to New York, was sufficient to bring on marked fibrillation, and at Dr. Longcope's examination the pulse varied from 130 to 150; the patient was also perspiring profusely. Dr. Longcope made a diagnosis of hyperthyroidism and because of the evident toxicity and myocardial damage advised x-ray rather than surgery. An electrocardiogram, taken by Dr. Eggleston at this time, showed evidence of myocardial disease and auricular fibrillation. Being interested in collecting medical opinions, Mr. D. consulted another clinician, of his own choice, while in New York, who assured him that the diagnosis of hyperthyroidism was unwarranted



and advised removal of the tonsils. Because of the relatively slight enlargement of the thyroid, and the very obviously diseased tonsils, this latter opinion was concurred in after his return to Hartford by a surgeon who has seen much of hyperthyroid disease. The truth of DuBois' statement, that the basal metabolic rate is more apt to be correct than nine out of ten consultants, was demonstrated by this case, as two basal metabolism determinations, made within three days, gave plus 55 per cent. and 56 per cent., respectively. (Chart 5.) The "total toxicity" was estimated at 96. Radium (200 m.gm., one-half inch, 13 areas, 60 min.) was then applied over the thyroid and tonsils, and six weeks later radium was again applied directly to the tonsils through the mouth, 100 m.gm., 45 min. each tonsil. Three weeks after the first application of radium, the B. M. had fallen from plus 55 per cent. to plus 38 per cent., and there was a slight improvement in the pulse rate. There had been no gain in weight at this time though the patient felt better. Two months after the application of the radium the B. M. was normal and the tonsils were about one-quarter their original size. One month later the B. M. was minus 18 per cent., and at this time thyroid gland in small doses was begun, gr. three-quarters daily; three weeks later it was minus 14 per cent., so the thyroid was increased to gr. one and one-half daily. Three weeks later still the B. M. was still below normal so the thyroid was increased to gr. 4 per day, and in three weeks the B. M. was again normal. Thyroid was then stopped and one month later it had dropped to minus 18 per cent. In this case the pulse follows the B. M. very closely and the weight increases as the metabolic rate falls. As is usual in similar cases, Dr. Heublein thought a second radium treatment would be necessary after an interval of six weeks. At the expiration of this time, although Mr. D. was better, he was far from well, but inasmuch as the B. M. rate was steadily falling it was deemed advisable to postpone the treatment for a time. It is in-

interesting to speculate as to the degree of hypothyroidism he would have developed if the second application of radium had been made, as would have been the case had no B. M. determination been made. At present Mr. D. is in excellent condition, the slight prominence of the eyes has entirely subsided; the thyroid, which was only slightly enlarged, is, possibly, a trifle smaller. The reduction in the size of the tonsils has been as surprising as gratifying. The blood uric acid and urea are normal, and an electrocardiogram taken recently by Dr. Starr is normal in all respects. Mr. D. thinks he feels better the past month without thyroid than he did during the preceding month when he was taking it.

As deviations from the normal in basal metabolic rates are not always dependent upon diseases of the thyroid, a very careful history and painstaking examination should always precede the B. M. determination. This clinical study, if sufficiently thorough, will suffice to make the diagnosis in many cases. There are border-line cases, however, where the metabolic rate will prove very helpful. In conjunction with the usual clinical signs of toxicity the basal metabolic rate assists materially in deciding what form of therapy is most advisable. As changes in the metabolic rate frequently precede changes in the clinical picture, metabolism estimations at stated periods afford a valuable means of checking any therapeutic measure, either medical or surgical.

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NOTE ON MOISTURE ABSORBING EFFICIENCY OF CARBON DIOXIDE ABSORBENTS FOR METABOLISM APPARATUS.

By ROBERT E. WILSON, BOSTON.

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ALL those interested in the use of metabolism apparatus of the Benedict type will appreciate greatly the recent articles in this Journal* by Dr. Paul Roth of Battle Creek. There are, however, a few points with regard to the paper on "Moisture Absorbing Efficiency of CO₂ Absorbents" which should be mentioned as supple-

mentary to the interesting data there presented.

It is unquestionably true that Wilson soda lime, designed as it was to have maximum CO₂ efficiency *without caking*, absorbs very little moisture from the air and maintains a relative humidity throughout the apparatus of about 80 per cent. at all times. Dr. Roth's article appears to imply, however, that this failure to absorb moisture as well as CO₂ is a fundamental defect in such an absorbent, which is certainly not the case. It is true, to be sure, as Dr. Roth points out, that the presence of this moisture in the air may cause an error of from 1½ to 3 per cent. (depending on the temperature) in calculating by the customary methods the true volume of oxygen consumed. This error is, however, caused *solely* by the use of correction tables which were calculated on the basis of reducing warm *dry* air to standard conditions of temperature and pressure, whereas correction tables of identical accuracy may be drawn up for any other constant humidity, either absolute or relative.

Fortunately, extensive humidity equilibrium measurements made in this laboratory and elsewhere on Wilson soda lime indicate that material of a given water content maintains substantially constant relative humidity at all ordinary temperatures, and that as marketed (16-18% H₂O) this relative humidity is 80 per cent. It does absorb small amounts of water from the nearly saturated air which reaches it in the metabolism apparatus, but has never been found to give humidities above 90 per cent. in service. The average values reported by Dr. Roth were slightly lower than this, but in the course of correspondence Dr. Roth has attributed this to allowing some of the moisture to escape from the soda lime before use, and he reports recent values on half-used soda lime of 79.1%, 81.8% and 82.8%, which confirms the above conclusion. Similar measurements on caking absorbents which contain larger percentages of caustic soda, indicate humidities varying from 0 to 20 per cent. or higher, the higher quantities being due to the water seal, or to partly used material.

It is therefore apparent that the average error made in correcting the volumes measured with Wilson soda lime by using a correction table calculated for 80 per cent. humidity, is actually *less* than that made by using a caking absorbent and correcting on the customary assumption of 0 per cent. humidity. In both cases, however, the accuracy is well within the limits of error of the measurements.

In order to retain the advantage of non-caking absorbents for CO₂ and yet eliminate the errors due to calculating on the basis of the ordinary tables, the following correction table has been constructed by modifying Clarke's table* to allow for 80 per cent. relative humidity

*Clarke's table given in Dr. Roth's article was originally based on a similar table by Carpenter. Since the writer's table was calculated his attention has been called to a somewhat similar table calculated by McKesson for 67% humidity in a recent booklet describing his Metabolizer. The directions there given for drying the soda lime will, however, lead to erroneous results.

FACTORS** FOR REDUCING VOLUMES OF WARM 80% SATURATED AIR TO 0°C AND 760 MM.

$$\text{Formula:—} \frac{1}{1+0.00367t} + \frac{P-0.80Pw^*}{760} = \text{Factor}$$

P (mm.)	15°	16°	17°	18°	19°	20°	Temp. °C	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°
650	798	794	791	787	784	780	777	773	769	765	761	756	752	748	744	740	740
655	804	800	797	793	790	786	783	779	775	771	767	762	758	754	750	746	746
660	810	806	803	799	796	792	789	785	781	777	773	768	764	760	756	752	752
665	816	812	809	805	802	798	795	791	787	783	779	774	770	766	762	758	758
670	822	819	816	812	809	805	801	797	793	789	785	780	776	772	768	764	764
675	828	825	821	818	815	812	807	803	799	795	791	786	782	778	774	770	770
680	834	830	827	824	821	818	813	809	805	801	797	792	788	784	780	776	776
685	841	837	833	830	827	824	819	815	811	807	803	798	794	790	786	782	782
690	848	844	841	837	834	830	825	821	817	813	809	804	800	796	792	788	788
695	854	850	847	843	840	836	831	827	823	819	815	810	806	802	798	794	794
700	860	856	853	849	846	842	837	833	829	825	821	816	812	808	804	800	800
705	866	862	859	855	852	848	843	839	835	831	827	822	818	814	810	806	806
710	872	868	865	861	858	854	849	845	841	837	833	828	824	820	816	812	812
715	878	874	871	867	864	860	855	851	847	843	839	834	830	826	822	818	818
720	885	881	877	873	870	866	861	857	853	849	845	840	836	832	828	824	824
725	891	887	883	879	876	872	867	863	859	855	851	846	842	838	834	830	830
730	897	894	890	886	882	878	873	869	865	861	857	852	848	844	840	836	836
735	904	900	896	892	888	884	879	875	871	867	863	858	854	850	846	842	842
740	910	906	902	898	894	890	885	881	877	873	869	864	860	856	852	848	848
745	916	912	908	904	900	896	891	887	883	879	875	869	865	861	857	853	853
750	922	918	914	910	906	902	897	893	889	885	881	875	871	867	863	859	859
755	928	924	920	916	912	908	903	899	895	891	887	881	877	873	869	865	865
760	934	930	926	922	918	914	909	905	901	897	893	887	883	879	875	871	871
765	941	936	932	928	924	920	915	911	907	903	899	893	889	885	881	877	877
770	947	943	939	935	930	926	921	917	913	909	905	899	895	891	887	883	883
775	954	949	945	941	936	932	927	923	919	915	911	905	901	897	893	889	889
780	960	956	952	948	943	939	934	930	926	921	917	911	907	903	899	895	895

*Pw=Pressure of water vapor at the temperature in question.

**Table calculated by Tyler Fuwa on basis of table by E. H. Clarke.

in the warm air as measured. This change decreases Clarke's correction factors by amounts varying from .013 at 15°C. to .030 at 30°C.

While the use of a drying agent such as calcium chloride in conjunction with Wilson soda lime is possible, the two should not be placed close together, because the CaCl_2 simply exhausts itself in absorbing water from the soda lime, which latter needs the high moisture content in order to have its maximum efficiency. It is much better to use all the available space for the CO_2 absorbent only.

In addition to their non-caking qualities, CO_2 absorbents which do not absorb moisture have two other important advantages, in that (a) the heat evolved in the absorbent is *much* less, thus preventing undesirable temperature fluctuations during the test; and (b) there is no need to use a moistener in the mouthpiece, as is otherwise required to make the dry air comfortable for breathing by the patient.

From the foregoing it is obvious that the water content of Wilson soda lime should be kept above 14 per cent., both in order to insure high CO_2 absorbing efficiency and to keep the humidity within the range for which the correction table is calculated.

The accumulated experience of a considerable number of experimenters with metabolism apparatus, confirmed by Dr. Roth, indicates that the use of caking absorbents by themselves is impracticable, if not an unmitigated nuisance. By the use of the foregoing correction table, however, all the advantages of the non-caking, non-heating absorbents can be obtained without any sacrifice whatever in the accuracy of the results.

THE MORTALITY FROM DIABETES.

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IN a recent discussion of the mortality from biliary and urinary calculi I tentatively presented the subject in its international aspects to draw attention to the apparent geographical distribution of these affections.* The results of a similar inquiry into the local incidence of diabetes seem to be deserving of a brief discussion, primarily for the purpose of suggesting further research into certain etiological aspects of this disease which, as yet, have received exceedingly superficial consideration. It is clearly realized, of course, that the diagnosis in diabetes is much more difficult than in the case of acute infections or readily cognizable chronic diseases. Few diseases have a more technical literature than diabetes, and it is clearly apprehended that serious objections

may be raised against the use of crude statistical methods in determining its probable geographical distribution. But in the absence of a previous extended international comparison of available death rates it is hoped that the following observations will be received, in due appreciation of the intrinsic difficulty of considering the subject statistically from a strictly scientific point of view.

It is to be assumed that in the mortality returns of diabetes, both diabetes insipidus and diabetes mellitus are included, while, of course, it is the latter form of the disease which is the more important. Errors in diagnosis without a chemical examination of the urine are no doubt of fairly common occurrence, but how far this has been determined by autopsy findings is not, apparently, a matter of trustworthy record. The fact, however, that diabetes is, as a rule, a disease of prolonged duration, minimizes the chances of error in terminal diagnosis to a considerable degree.

It may not be out of place in this connection for me to direct attention to an extremely suggestive discussion on "The Causes of Death in Diabetes," by Dr. Elliott P. Joslin, of Boston, delivered before the New York Academy of Medicine, December 21, 1915. Dr. Joslin, in an analysis of the end-results of 945 diabetic cases, ascertained that 921, or 97.5 per cent., had been traced, and 425, or 46.2 per cent. of the traced, had died. The actual causes of death were ascertained in all but five of the 425 cases. There were 147 cases without coma, and 273 cases with coma. Of the former cases, 17 suffered from cancer, 16 from pulmonary tuberculosis, 62 from cardio-renal and vascular diseases, and 36 from infections of various kinds, including 15 cases of pneumonia. Of the deaths, 15 occurred in hospitals, and 258 occurred outside of hospitals. It is suggestive that of the 17 cases of cancer complicated by diabetes six should have been cases of cancer of the liver. It is explained that cancer apparently developed after the diabetes in eight cases, and may have developed before or coincident with the diabetes in seven others. It is such investigations as the one by Dr. Joslin that suggest the most fruitful field for statistical inquiry into the etiology of diabetic affections.

The exceptional frequency of diabetes among Jews is beyond the range of controversy. In a recent investigation by a Dutch authority on the vital statistics of Amsterdam, earlier investigations are sustained by additional evidence derived from a wide range of information. Countries with a large Jewish population are, therefore, likely to have a high rate of incidence, attributable primarily to racial influences. Subject to these very fragmentary observations, attention is directed to the following table, giving diabetes death rates for

*New York Medical Journal.

specified countries, in most cases for the five years ending with 1919:

TABLE I.

MORTALITY FROM DIABETES IN FOREIGN COUNTRIES.

(Rates per 100,000 population.)

	Rate		Rate
Island of Malta....	38.4	Spain	5.8
Isle of Man.....	18.1	Ceylon	5.6
Island of Guernsey..	16.1	Italy	5.1
Bermuda	15.2	Island of Mauritius..	5.6
New Zealand	14.6	Uruguay	5.0
Holland	12.5	Hawaii	4.6
England and Wales	11.8	Trinidad and Tobago	4.3
Province of Ontario	11.5	Newfoundland	3.6
(Canada)		Cuba	3.2
Egypt	11.3	Japan	2.8
Australia	11.3	Straits Settlements..	2.6
Nova Scotia	10.5	Chile	2.4
Tasmania	10.1	Porto Rico	2.3
Scotland	9.7	British Guiana	1.8
Ireland	8.3	Grenada	1.6
Union of So. Africa	7.7	Province of Tucuman	1.6
Province of Alberta.	6.7	(Argentine Republic)	
(Canada)		Jamaica	1.5
Province of Manitoba	6.0	Bahamas	1.1
(Canada)		Venezuela	1.0

The range in relative frequency is really extraordinary, reaching a maximum of 38.4 per 100,000 of population in the case of the Island of Malta, 18.1 for the Isle of Man, and 16.1 for the Island of Guernsey; and a minimum of 1.5 for the Island of Jamaica, 1.1 for the Bahamas, and 1.0 for Venezuela. The average diabetes death rate for the United States Registration Area is 16.4 per 100,000 of population, practically the maximum rate attained for the countries or islands which rank highest in the foregoing table. The American death rate is decidedly above the normal average of 11.8 for England and Wales, and while unquestionably somewhat affected by the relatively large Jewish population in our large cities, this factor cannot be considered as primarily responsible for the marked excess. Since diabetes is essentially a disease of adult age, the following table of death rates, at ages 20 and over, is included for a number of important countries.

TABLE 2.

MORTALITY FROM DIABETES, AGES 20 YEARS AND OVER.

(Rates per 100,000 population.)

	Rate
Island of Malta.....	67.8
New Zealand	23.2
Holland	21.0
England and Wales..	21.3
Australia	17.8
Nova Scotia	15.8
Tasmania	16.1
Scotland	17.0
Ireland	12.7
Union of South Africa	13.7
Uruguay	10.3
Province of Alberta, Canada	9.5
Province of Manitoba, Canada	8.8
Italy	8.6
Province of Tucuman, Argentina	3.3

This table does not change materially the previous conclusions as to the relative frequency of local incidence.

To the foregoing I add a few relative rates, according to sex, limiting the comparison to ages 20 and over. For Malta the male diabetic death rate is 62.8 per 100,000 of population; for females, 72.8. For New Zealand the rates are 22.3 and 24.1, respectively; for Holland, 18.7 and 23.1; and for England and Wales, 25.7 and 18.2. For Australia the males have a rate of 15.3, while the females have a rate of 20.4; and in Tasmania the same excess in the female mortality is met with, the rates being 13.4 and 18.8, respectively. For Scotland the male rate is 16.1 and the female rate 17.8; while for Ireland the respective rates are 14.4 and 11.1 per 100,000 of population. In Italy women are distinctly less liable than men, the rate for the former being 6.8, while for the latter the rate is 10.5; but in Uruguay this position is reversed, the male rate being 8.2 and the female rate 12.6 per 100,000 population. In a general way, therefore, this analysis would seem to support the conclusion that women are somewhat more liable to diabetic affections than men.

For more restricted urban areas the rates are probably more trustworthy and significant. The third table will show the diabetic death rate of the principal foreign cities for which the rates or information could be obtained, most of the data being for the five years ending with 1918 or 1919:

TABLE 3.

MORTALITY FROM DIABETES IN FOREIGN CITIES.

(Rates per 100,000 population.)

	Rate
Berlin, Germany	17.9
Copenhagen, Denmark	17.1
Amsterdam, Holland	15.9
Paris, France	15.5
Barcelona, Spain	14.9
Florence, Italy	14.1
St John, New Brunswick.....	13.4
Christiania, Norway	13.2
San Salvador, Salvador.....	13.0
Colombo, Ceylon	12.5
Victoria City, British Columbia	11.5
Basel, Switzerland	11.4
Montreal, Canada	11.2
Toronto, Canada	11.1
Montevideo, Uruguay	10.6
Edinburgh, Scotland	10.4
London, England	10.3
Belfast, Ireland	9.9
Glasgow, Scotland	8.8
Madrid, Spain	8.8
Turin, Italy	7.2
Milan, Italy	6.3
Mexico City, Mexico	5.4
Manila, P. I.	4.5
Singapore, Straits Settlements	4.3
Tokio, Japan	4.1

To facilitate a convenient comparison it may be stated that the normal diabetic death rate

of New York City for the five years ending with 1919 was 19.8 per 100,000 of population, or higher than the maximum rate, according to the table, reported for the city of Berlin, or 17.9 per 100,000, or for Copenhagen, Denmark, for which the rate is 17.1; but for Amsterdam, Holland, the rate is 15.9. The minimum rates are reported for Tokio, Japan, or 4.1; for Singapore, or 4.3; for Manila, P. I., or 4.5; and for the City of Mexico, or 5.4.

In the case of the cities, as in the case of the countries, the rates do not undergo a material change in their relative positions when reduced to the age period 20 and over. For a few of the cities for which the information is available the following rates, according to sex, at ages 20 and over, are of interest: Berlin, Germany, males 31.4 and females 20.8 per 100,000; Copenhagen, Denmark, males 28.1 and females 20.9; Florence, Italy, males 27.1 and females 14.5; Christiania, Norway, males 24.4 and females 14.5; Victoria, B. C., males 12.0 and females 15.3; Montevideo, Uruguay, males 13.7 and females 25.9; London, England, males 16.8 and females 14.8; and Singapore, Straits Settlement, males 5.5 and females 6.7.

The results of this analysis would seem to contradict the previous conclusion regarding the higher frequency of diabetes in the case of females, but this may possibly be explained by a higher incidence of diabetic affections among women in rural districts, who, of course, make up the larger portion of the population of the countries considered.

It is evident that a much more extended inquiry is necessary to determine the facts with scientific precision. Whether diabetes is on the increase or not is secondary to the question that the disease is widespread among the well-to-do and the prosperous, among whom hypernutrition and excess in weight emphasize abnormalities of metabolism as the result of erroneous dietary or other habits. Diabetes unquestionably is closely correlated to excess in weight, and the prevention of the disease is, therefore, within the range of possibility in a considerable number of cases. The apparent increase in diabetic affections would seem to coincide with the increase in the death rate from cancer. Years ago Manders and others held that diabetes and cancer occurred frequently in the same person and at the same time. The statistics previously quoted are at least suggestive on this point. A medical journal, some years since, pointed out that:

"The discovery that malignant tumors were at times rich in glycogen also led Manders to look upon a cancer as a 'local diabetes,' curable in theory by a diastatic enzyme. Later it was shown that the glycogen in tumors was not connected with their pathogenesis and had little significance of any sort." But more re-

cently, "Hirshfeld, in the *Berliner klinische Wochenschrift*, . . . called attention to a certain relationship between diabetes and neoplasia of the female genitals, including the normal hyperplasia of the gravid uterus. The claims advanced for the existence of this association are as follows: Pregnant diabetic women show a diminished tolerance for carbohydrates, and this loss may not be regained. Tumors of the generative organs often develop at about the time of inception of diabetes, as if the former were able to influence unfavorably the carbohydrate metabolism. Cutting down the carbohydrates will sometimes diminish the degree of hemorrhage from uterine myomata. Again, extirpation of these tumors—uterine fibromyomata, ovarian cystomata—will often cause improvement in a diabetic patient. Glycosuria may disappear outright or persist to a limited degree."

It is, therefore, considered reasonable to regard this association of tumors with diabetes as not wholly foreign to the older views of Manders and others.

These observations are deserving of thoughtful consideration. There is certainly a sufficient amount of evidence to support the conclusion that hypernutrition and malignant disease more often coincide than can be explained as a matter of pure chance; while diabetes and excessive body weight are more often associated than not in cases which terminate fatally. In any event, it is extremely suggestive that the diabetic death rate of the United States Registration Area and of the city of New York should be about the highest known for any country or city at the present time.

A NOTE ON GENERAL PARESIS AT THE DANVERS STATE HOSPITAL.*

By HARVEY M. WATKINS, M.D., HATHORNE, MASS.

The problem of syphilis is ever present. Despite the educational campaigns on venereal disease, the articles in lay and professional journals, the continual tendency toward moral and social uplift, yet we see each year the victims of neglected treatment being admitted to our institution.

The purpose of this paper is to consider briefly that class of patients, the general parietic, who was formerly thought to be a permanent invalid and hopelessly bedridden; the most that could be expected was a short remission. Their treatment consisted of custodial care, therapeutic indifference and pessimism. The end came after a long period of being bedridden, and bedsores were always conspicuous.

In this hospital from 12 to 17 per cent. of all

*Read before the Essex County (South) Medical Society, Feb. 8, 1922, at Danvers State Hospital.

admissions show evidence of syphilis in some form. Of this number over one-half show positive signs, clinically or serologically, of general paresis; the yearly average for the last five years being 55 per year.

A routine blood Wassermann is taken in every admission. If this is positive or if neurological signs or symptoms are present a lumbar puncture is done. Frequently a case is seen that has a negative blood with obscure clinical symptoms. In all such as this a lumbar puncture is also made, which is of great importance, both from a diagnostic and prognostic standpoint.

At the present time we have 54 paretics in the hospital, 40 males and 14 females. Of this number, 42 are being daily employed in some sort of work, varying in amount from one to six hours. The character of their work ranges from polishing or swabbing a floor, for an hour a day, to carrying on routine duties as a plumber, running a washing-machine in the laundry, working on farm, making cement blocks, etc.; in fact, any and all occupations around the hospital, that can be done by patients, have been done at different times by the paretic; some showing a fair amount of initiative, others requiring a large amount of supervision and several requiring constant oversight, but are able to carry on in some kind of employment.

The most interesting group at present is that group that is residing in the community. Thirteen such cases are now under our observation, 8 males and 5 females. Four of this number are returning on Monday for treatment and carrying on their former occupations the remainder of the week. Industrially and economically these present many improvements over the past. One, a mother, is caring for her home and family, with the assistance of a maid. One, a male, is doing micrometer work in a shoe factory, another cutting soles, another stitching uppers, two are engaged in farming, one works in an electrical plant, while one, a female, has been outside the institution since August, 1913. She is doing housework as a maid; has changed positions three or four times. Her present employer understands her temperament, and while at times she is somewhat irritable, requiring a visit from our outpatient department, she has been able to get along for about nine years without returning to the hospital. Some are able to continue as regularly employed while others are capable of only a few days a week. They are followed up by our Social Service Department, adjustments are made in the community, work occasionally changed, advice and counsel freely given. They are also seen at clinics and assistance given in every possible way. In this manner six have managed to remain outside for an average of four years, six months each,

thereby contributing to the support of their families, their own, and to the relief of the huge burden our State must bear in the care of its charges.

A vast amount of literature on the treatment of paresis is constantly being published, various methods of treatment devised and conflicting claims advanced for each. Elaborate technique is required for some, a thorough knowledge of surgery is desirable in others. While all of these offer advantages and disadvantages, many of them are not practical. Our idea has been that it does not matter a great deal as to the method employed as long as the patient is treated, regularly and continually, and so long as the antisiphilitic remedies come into contact with the blood, the cerebrospinal fluid and their adjacent structures.

Our plan of treatment is not offered as the best, far none, but is offered as a practical, workable solution, under our present knowledge of the disease. It may be divided into specific, hydrotherapeutic, medicinal, and follow-up. Well-diluted arsphenamine solution (0.1 gm. in 30 cc.) 0.3 gm., given intravenously weekly, for a period of 6 to 8 weeks, followed by a course of mercury injections for a similar period, given intramuscularly; potassium iodide may be given for a like period. Treatment is then omitted for two weeks; then a repetition of the above course. After six months if there is evidence of improvement, clinically or serologically, the treatment is continued. If no improvement, then a question arises of further treatment. In the majority of cases it is continued, unless by reason of physical failure or severe untoward reactions, it is deemed advisable to discontinue it. Sometimes arsphenamine, *per se*, may be contraindicated and, therefore, other forms of treatment are necessary.

At times a lumbar puncture is done previous to administration, thereby better fitting the cerebrospinal fluid to absorb the arsphenamine from the blood. This is not frequently required as it is a known fact that it does reach the cerebrospinal fluid, and can be recovered there as such, thereby showing that intravenously administered it does reach the central nervous system. Hydrotherapy has been of great service, as body elimination is very desirable, and continuous baths, tonic showers and cabinet sweats are of use in quieting some of the more excited stages. Tonics are useful, laxative required, and the physical comfort of the patient should go hand in hand with any specific therapy.

As soon after admission as possible, suitable work is provided and encouragement offered by all those that come in contact with the patient; and last, but by no means least, is that part of the program carried on by our Social Service Department, whereby the patient can be placed in the community, employment found,

difficulties righted, and if not able to reside outside the hospital for a long period of time, short visits may be arranged.

For the hospital year ending September 30, 1921, there have been administered 1267 arsphenamine injections, 882 mercuries, a weekly average of 25 and 17, respectively.

It is interesting to note at this time the effect of treatment on the terminal stages. Formerly the parietic remained in bed for several weeks or months before the end came. He was a constant care, helpless, bedsores prominent, tube-feedings constantly required, untidy and cachectic. By treatment the terminal stages are shortened, the last four deaths being in bed less than three days.

In passing, it may be mentioned that all other cases of syphilis are actively treated and all Wassermanns are rendered negative before discharge, thereby trying to prevent the development of tertiary symptoms at a later date.

CONCLUSIONS.

The apparent improvement in a few cases justifies the belief that routine administration of antisypilitic therapy is called for in all cases of paresis, and that he is a better patient, both within and without the institution, under treatment. Practically no ill effects have been observed under intensive treatment. Twenty per cent. are able to "carry on" outside by the aid of the Social Service Department and our outside clinics. Seventy-seven per cent. of those in hospital are able to do some form of useful work, while, of the sixty-seven studied, only nine are in bed, and only four of those continuously.

BRIEF ANALYSIS OF 500 CASES REFERRED TO THE BOSTON CITY HOSPITAL OUT-PATIENT HEART CLINIC.*

By BURTON E. HAMILTON, M.D., BOSTON,
AND
JOSEPH E. HALLISEY, M.D., BOSTON.

A special cardiac clinic was started in the Medical Out-Patient Department of the Boston City Hospital two years ago. This paper refers to the first 500 cases sent to this clinic. Five hundred cases should represent the amount of heart disease in a community of somewhere near 25,000 souls. It seems reasonable to believe that the cases in this clinic, from the nature of the hospital, should afford a picture in miniature of heart disease in the whole community, at any rate as little distorted by artificial conditions as we can obtain offhand. We have no actual survey of a community. Surveys of heart disease in schools, the army, industrial groups, among

life insurance applicants, afford only narrow glimpses of the whole picture.

Totally disabled, bedridden cases, do not come to this clinic, so the picture presented should not be at any rate unduly gloomy.

Following is the grouping of these cases by diagnosis:

Rheumatic Heart Disease.....	202
Potential Rheumatic Heart Disease.....	45
Arteriosclerotic Heart Disease.....	26
Cardiovascular Syphilis.....	26
Congenital Heart (or Suspected Congenital Heart).....	19
No Heart Disease.....	69
Neurasthenia with Cardiovascular Symptoms.....	40
Heart Changes with Hypertension.....	19
Miscellaneous.....	51

500

Etiological classification of heart disease such as the above has been used to some slight extent for a long time; of late years its use is becoming more and more general. We have used it since the clinic started. Its advantages are obvious. It is impossible to think clearly about heart disease without some form of etiological classification.

A few of the above groups deserve comment. Following is a division of the rheumatic heart disease group into decades by ages of the patients:

Age of Patients in Decades	Number of Patients
-10.....	27
11-20.....	102
21-30.....	27
31-40.....	21
41-50.....	18
Over 50.....	7

202

We have no wish to attack so vast a subject as rheumatic heart disease in this paper, but these figures demand some discussion. One hundred twenty-nine patients under twenty, with 48 in the next two decades is remarkable. One hundred two in the second decade, and 27 in the third, suggest that few more than a score of the 102 will be alive and not disabled ten years hence. There is no reason to believe that any artificial factors have sent a disproportionate number of children and adolescents to the clinic.

More than half the cases in the decades above the second have contracted their heart disease since their twentieth year. This will counteract any possible unrecognized factors that may have sent us a disproportionate number of adolescents. Among the patients in the upper decades are some that had their heart disease in adolescence and are still far from disability. It is possible for some to live long and live well in spite of rheumatic heart disease.

Not far from one per cent. of our school children have rheumatic heart disease. In the light of the above figures this large number of chil-

*Given in part at the Boston City Hospital Clinical Meeting, April 14, 1922.

dren in the community with rheumatic heart disease makes an unpleasant picture to contemplate.

It is generally believed from convincing personal observations (that nearly every physician dealing with rheumatic heart disease has made) that removal of tonsils and of oral sepsis has a beneficial effect in several ways on the progress of rheumatic heart disease. We have some statistics to bear this out. But many of the successful cases in this clinic have succeeded in spite of complete neglect of these matters. Many others we see pursue a rapid downward course in spite of every reasonable effort at removal of foci of infection and closure of portals of entry. We can repeatedly pair two similar cases, and under similar treatment from this point of view watch one do well and the other progress steadily to heart failure and total disability. These procedures do not offer the final answer to the problem. This is fairly generally believed, and we have again some statistics to confirm this belief.

In this clinic we are continually impressed with the probable fact that many ambulatory rheumatic heart disease cases have a low grade active infectious process at work in their hearts, and that this active infection rather than mechanical handicaps from old scars, or repeated reinfection, is what accounts for the continued downward progress of many cases many months after a rheumatic fever attack has subsided, and proper attention to teeth, tonsils, etc., been given. We know that rheumatic heart disease has active febrile stages. Nearly every one agrees that during these stages rest in bed is essential. We have endeavored in this clinic each time that we have made a diagnosis of rheumatic heart disease, to add to this, so far as we could, whether or not the disease was active at the time. We have tried to give patients whose heart disease we believed to be active, rest in bed until signs of activity ceased. Diagnosis of this activity is a very unsatisfactory task to attempt in out-patient work. The principal evidence for it is fever (often slight) without other demonstrable cause than a rheumatic heart disease. We have obtained temperature records on suspected cases by various means; such as a week in hospital, or in bed at home with daily visits by district nurses. In 49 (out of the 202) cases we have been able to make a diagnosis of active or probably active rheumatic heart disease. In some other instances we have been forced to recognize activity when it was not at first suspected, by the progress of the case in question.

It remains to be seen whether after these methods are faithfully pursued a survey of cases in this clinic a generation hence will present a less unsatisfactory picture than the present one.

Following is the number of rheumatic heart disease cases showing, so far as these diagnoses

can be made, pure aortic regurgitation, pure mitral stenosis, combined aortic regurgitation and mitral stenosis, and the number of patients under each of these headings that are over 30 years of age.

Number of patients with aortic regurgitation, 28 (of these four aged over 30); mitral stenosis, 56 (of these 23 aged over 30); aortic regurgitation and mitral stenosis, 22 (of these five aged over 30).

It is evident first that the old belief, now generally discredited, but still occasionally expressed, that aortic regurgitation is more often due to syphilis than to rheumatic diseases, is wrong. Here are fifty cases of aortic regurgitation from rheumatic heart disease, against a total of twenty-six cases of syphilitic heart disease in this open clinic.

We often hear it stated that pure aortic regurgitation is a less disabling condition than mitral stenosis. An occasional pair of cases bears this out, but in this series of rheumatic heart disease cases many more (and a higher percentage of) the mitral stenosis cases have lived long and well, than of the cases of aortic regurgitation. In general, basing prognosis in rheumatic heart disease on the site or extent of a lesion is bound, by the nature of the disease, to be unsatisfactory. This point is mentioned simply because diagnostic analysis of these cases brings it up. Experience in this clinic suggests, as is reasonable, that activity of the infection is the single most important factor in the prognosis of rheumatic heart disease.

The potential rheumatic heart disease group (patients that have, or have had, chorea or rheumatic fever without as yet having demonstrable heart disease) undoubtedly should be larger. This is a really new diagnosis, but one welcome to all familiar with rheumatic heart disease. It is in increasingly general use due to the approval of the New York Association of Cardiac Clinics and to the efforts of Dr. St. Lawrence of New York, who has showed its significance in practice. As yet it is not fully recognized that these cases are referable to a special heart clinic.

Arteriosclerotic heart disease is a very elastic diagnosis. There is no satisfactory standard as yet for its use. It is not, of course, a pathological and clinical entity. In certain cases it is, however, as clean cut clinically as, for instance, Parkinson's disease. We have tried to use this diagnosis only in cases with definite heart changes which could be accounted for only by the degenerative changes associated with age.

The groups called "No Heart Disease" and "Neurasthenic States with Cardio-vascular Symptoms" form the rejections from the clinic. These combined diagnoses should approximate 30 per cent. of the total cases referred to the clinic. For various reasons we did not keep records of many of these cases at first, but only of those that for some reason or other we wished

to re-examine. About half the total rejections might be classed as neurasthenias with some combination of the following symptoms predominating: breathlessness, weakness, tachycardia, palpitation, heart pain, giddiness, fainting, trembling, vasomotor disturbances (such as cyanosis).

No combination of these symptoms *alone* justifies diagnosis of heart disease. (A possible exception of this statement might be a convincing history of "true" angina pectoris without other symptoms. No such case has appeared in this clinic. Three diagnoses of angina pectoris have been made in these 500 cases. Two had cardiovascular syphilis, the other was classed as arteriosclerotic heart disease. Heart pain as a symptom is very common in the clinic, bearing no relation to heart disease.)

These symptoms are the ones that physicians in military service became familiar with during the world war, grouped under various names such as "Effort Syndrome," "Soldier's Heart," "Neuro-circulatory Asthenia," etc. A great amount of careful study was done on these conditions, and satisfactory methods for differentiating patients disabled by this state from those disabled by demonstrable organic disease, were evolved. Yet now we find the heart clinic, at any rate, pervaded by these patients who are without any true signs of heart disease, but nearly all of whom have been told by physicians in the community at some time or other that they had some disabling heart disease.

It is interesting to remember the attention paid in medical literature and in discussion to this class of cases three and four years ago, and the nearly total absence of such interest now. It is not suitable in this paper to go into the matter deeply, but this brief survey of 500 unselected heart cases suggests at once that there is a large group of more or less disabled individuals in our general out-patient departments that is, as a rule, wrongly diagnosed and consequently wrongly treated.

Furthermore, many of the cases listed here under diagnoses of true heart disease show in addition a complicating neurasthenia. They are often disabled by symptoms included in the above list, and not by symptoms in any sense directly due to heart disease. It is remarkable how often the death of a friend or relative of a heart patient immediately precedes this patient's increased disability from some of the above symptoms. Successful classification and treatment of (at any rate adult) heart patients depends in large part on the differentiation of disability due to heart failure from disability due to complicating fatigue symptoms resulting from social misfortune, worry, or overwork. This is self-evident, but again, the large number of heart cases in this clinic disabled by "neurasthenia" demands recognition in this analysis.

CONCLUSIONS.

From a brief survey of 500 unselected cases of heart disease it appears that:

1. Rheumatic heart disease is extraordinarily fatal, at any rate among children and adolescents. This series suggests that the great majority of adolescents with rheumatic heart disease have an expectation of life of less than a decade.

2. Forty-nine of 202 unselected rheumatic heart disease cases, under careful observation, showed more or less strong evidence of an active infectious process of the heart. Activity of rheumatic heart disease is easily overlooked.

3. Approximately 15 per cent. of cases referred to a general heart clinic have neurasthenia with symptoms suggesting heart disease. These cases usually have been diagnosed wrongly as cases of true heart disease.

LANTERN SLIDE DEMONSTRATION OF SOME POINTS OF HEART DISEASE.

BY WILLIAM D. REID, M.D., BOSTON.

ABOUT twenty slides, comprising photographs, diagrams and electrocardiograms of normal and pathological hearts were shown. They included some of the recent changes in the knowledge of cardiac physiology and other data which support the conception that the crescendo murmur ending in a sharp first sound is early systolic in time and ventricular in causation rather than presystolic and due to the contraction of the auricle. The subject does not lend itself to further presentation without reproduction of the cuts.

SOME FACTS CONCERNING DIGITALIS.*

BY THOMAS J. O'BRIEN, M.D., BOSTON.

GRANTED that we have a well-taken history, a thorough physical examination, correct interpretations of our laboratory findings, and the results of our instruments of precision; in other words, a correct diagnosis, yet our patient is not benefited unless we administer the correct treatment. Personally, I feel that the weakest link in the chain of clinical medicine is the application of correct treatment, and this is especially so in treating diseases of the heart.

Digitalis was first introduced to the medical profession by William Withering, about 1775, and while it is one of our most valuable drugs, it is, perhaps, the least understood. When we lose confidence in its action, and even when it has been said that hundreds of patients die annually, from the fact that digitalis and its

*Read at the Staff Clinical Meeting at the Boston City Hospital, April 14, 1922; also at the Annual Meeting of the Currier Hospital Alumni Association, April 26, 1922.

allies have not possessed the virtues required of them, the blame is seldom merited, being more correctly due to improper dosage, deterioration of drug, or faulty selection of treatment.

Digitalis is a perennial plant, indigenous to Western and Central Europe, and may be grown in the United States; but unless the soil contains iron or manganese, the leaves have little medicinal value. In Virginia, Wisconsin, Minnesota, and near the Rocky Mountains, are found the best products in this country, while that grown in Kentucky, which has a clay soil, is found to be worthless for medicine. American *digitalis* compares favorably with that grown in Europe, but only eight of the twenty-five specimens examined by Pratt and Morrison came up to standard of the United States Pharmacopoeia.

While *digitalis* is official in the pharmacopoeias of all lands, we find different requirements, some specifying that the leaves are to be used within a year of time of being collected; some requiring that the leaves be gathered from wild plants; and others, that the leaves be gathered while plant is beginning to bloom. In the United States Pharmacopoeia of 1890, only the leaves collected from the plants of the second year's growth were accepted as official, but the present pharmacopoeia specifies the carefully dried leaves of the *digitalis purpurea*, without the presence or admixture of more than 2 per cent. of stems, flowers, or other foreign matter. The strength of the tincture is determined by a biological assay, the minimum lethal dose being not greater than .006 mil. of tincture for each gram of body weight of frog. *Digitalis* should be preserved in tightly closed containers, protected from light.

It may interest you to know that crude drugs are not usually purchased directly from the countries where they are grown, but are sent to one of the great world-marts, at London, Hamburg or Amsterdam, where the drugs are sorted, assayed, rebaled and labeled. The buyer goes through the vast warehouses, and makes his purchases wholly from the labels or tags, and finds upon delivery here, just what the tag described, as, "excellent leaf;" or, "medium quality, many stems;" or "poor grade leaf, much foreign matter," and so on, the price being influenced by the quality of the drug. Occasionally, the leaf is purchased directly from the farmer, in this country, and certain men market their products in this city, giving a very fresh and dependable leaf.

The commercial, as well as the medicinal value of a crude drug, depends upon the chemical assay of its active principles, as the amount of morphine in a sample of opium; of strychnine in *nux vomica*; and quinine in *cinchona*; but, unfortunately, the chemical analysis of *digitalis* fails to reveal the amount of active principles in an accurate manner, and the sub-

ject of a dependable method for chemical assay of this drug is in a state of chaos. It is also impossible to make a relative comparison between a chemical and a biological assay.

The active principles of *digitalis* are glucosides, which do not have the property of forming salts with acids, like the alkaloids. While some authorities agree that certain glucosides have been isolated, and identified, other investigators claim that often the same product is marketed under one name when it is sold in an amorphous form, and another name when it is sold in a crystalline form. It is generally admitted, however, that digitoxin is the most stable and most powerful glucoside, its dose being 1/480 of a grain. The other glucosides usually mentioned are digitalin, digitalein, digitophyllin and digitonin, the last being a saponin, and although inert as a medicine, is of value, in that its presence makes the other glucosides soluble in water, thus giving the tincture and infusion about the same constituents.

The importers grind the leaves into a powder, and, in cartons, it reaches the retailer, where the tincture, infusion, fluid extract, or pill, is made for the patient, as may be prescribed by the physician. Powdered *digitalis* varies from forty cents to two dollars a pound, and it is natural to suppose that the bale tagged "poor grade leaf" was the one ground up to sell for the cheapest price, and it is also within the bounds of imagination to think that this particular grade is a popular one. The United States Pharmacopoeia directs that 100 grams of powdered *digitalis* be placed in a percolator, that a menstruum of three volumes of alcohol and one volume of water be added, and that this be allowed to percolate until one liter is obtained.

Every tincture made this way is supposed to be of standard strength, and is sold as such, but investigation shows that it is rarely found to be so. While the United States Pharmacopoeia provides a biological assay, by the so-called "frog method," to determine the accuracy of the drug and its preparations, we find that there is hardly a pharmacist going to the great expense of having this assay made. A few have done so, and one, to my knowledge, found that his tincture was one and a half times as strong as the United States Pharmacopoeia's, although sold, up to that time, as officially correct.

A sample of the tincture of *digitalis*, made according to the United States Pharmacopoeia, and used at the Boston City Hospital, was sent to the Department of Pharmacology of the Harvard Medical School, in March, 1922, for a biological assay, which was made by the official "frog method," and the report shows that the preparation was "just under the pharmacopoeial strength, or, as 7 is to 6, in in-

verse ratio." The difference, although slight, shows that the tincture is somewhat weaker than it should be. At the same time, another sample of the same tincture was sent to the Division of Biological Laboratories, under the Department of Public Health, for assay, and their report reads, that the preparation was at least 25 per cent. stronger than the standard requirement for the official tincture. This assay was made by the Reed and Vanderkleed method, wherein guinea pigs are used instead of frogs. While the frog method is the official one, it is open to criticism, as the United States Pharmacopoeia does not specify the species of frog, and Pratt and Morrison¹ have found the European frog to be more susceptible to a lethal dose of digitalis than the American frog.

A well-known pharmaceutical house admits that it is obliged to spend at least five days in standardizing the frogs, to the temperature, water, etc., before testing the digitalis by the U. S. P. method of assay. Hatcher, who has done much work along these lines, has found the "cat method" to be more dependable than the others, but it is quite probable that an assay of the tincture by this method would show a still different result from the two already reported. For instance, Hatcher and Eggleston,² using the cat method, reported results of stability in infusions entirely different from that of Pomeroy and Heyl,³ who used the frog method. Hale, using the frog method, found that it took 16 times the amount of digitoxin and eight times the amount of digituratum that Hatcher and Brody⁴ required per kilo for a cat.

Another observer, Pittenger, is trying to perfect a method of biological assay which will be inexpensive, practical and accurate. His method calls for 500 cc. of tap water, a few gold fish, kept at 22° Centigrade, and the tincture to be tested. Exhaustive experiments involving the use of over 1000 fish proved the method to be most sensitive, when dilutions were used, which produced death in approximately three hours.

The amount found to be most satisfactory averaged 2.85 mil as the minimum lethal dose, and neither the size nor number of gold fish used nor the alcohol in the tincture seemed to affect the result.

With the present uncertainty of accuracy; with the lack of consistency in reports of the various methods of assay; with the marked differences in opinion, in the minds of our best authorities, as to the present official method; and with the great expense entailed, we can hardly blame the pharmacist for not having his digitalis assayed.

I know that my confrères will bear me out when I say that almost every student, and many practitioners, associate all cardiac con-

ditions with digitalis, and whatever the irregularity, the murmur or symptom, digitalis is at once prescribed.

While it is impossible to discuss the indications of digitalis in each specific case, it should be remembered that although it aids the heart to greater action, by calling on its reserve power, it cannot do the impossible, namely, increase the absolute power of the heart. Again, the dose suitable for certain conditions of heart disease, while the patient is at rest, is not a proper dose for a patient exercising or continuing at his work. The heart will do more actual work, at a slow rate, without exhausting itself, than it will with a rapid rate, which soon wears out the tired heart muscle. Thus, when digitalis is clearly indicated in a case, rest, both physical and mental, is just as surely indicated.

It is very interesting to find that tincture of digitalis is always given in drop doses, and inquiry at many drug stores indicates that 10 to 15 drops two or three times a day is the favorite manner of prescribing it. Many pharmacists dispense digitalis with a red label to impress the patient that he is taking a very powerful and poisonous medicine.

Even when you prescribe minims on your prescription you will almost always find "drops" written upon the label of the bottle, and when it is not changed, the nurse or attendant will administer drops, as they have no facilities for measuring minims.

The difference between what your patient should have taken, when you prescribed 15 minims four times a day, and what he actually did take, is startling, as proven by these vials for a day, a week and a month, showing, in multiples, that there are about two drops to a minim. This vial containing a drachm—that is, 60 minims—measures 128 drops.

The natural tendency of most practitioners is to give too small a dose of digitalis. Ten minims of the tincture has been found to measure from 19 to 25 drops, according to lip of dropper. Four c.c. of the infusion equals eight minims of the official tincture, and many a physician, who would not give 30 minims of the tincture at a dose, often prescribes a dessertspoonful or even a tablespoonful of the infusion every four hours, obtaining a satisfactory result and thus having more confidence in the infusion.

Digitalis should be given in amounts sufficient to cause therapeutic action, then continued for a while with doses capable of sustaining the effect, or omit the drug entirely, repeating dose again, if it is needed.

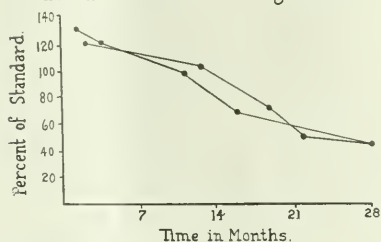
Deterioration of digitalis is a fact not fully appreciated by the clinician, and explains many of our failures when the diagnosis was correctly made and the treatment apparently administered correctly. Physicians naturally

assume that the authorities compel the pharmacists to follow the United States Pharmacopoeia, so wrongly feel that the preparations are always of a standard strength. This is not so. Old preparations of aconite, ergot, squill, strophanthus and digitalis have been found to be worthless by biological assay, although they were made by the official methods.

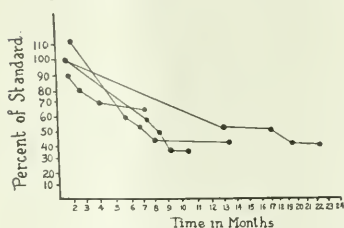
Pittenger,⁵ who has done much work on the assay of drugs, has reported that he has made 51 assays of digitalis and that the strength of the tinctures varied from 0 per cent. to 444 per cent.

Very valuable papers on the stability of digitalis leaf extracts were published in the *American Journal of Pharmacy*, by Schmidt and Heyl in 1919 and by Pomeroy and Heyl in 1920, and their graphs and summaries are freely quoted in this article.

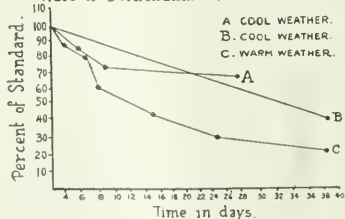
Rate of Deterioration of Digitalis Leaves.



Rate of Deterioration of Tinctures of Digitalis.



Rate of Deterioration of Infusions of Digitalis.



These graphs show a progressive deterioration of digitalis and its preparations, which reach an equilibrium of somewhat marked stability, indicating that the leaf contains a constituent more stable than a second active but unstable constituent which is also present. Digitoxin is undoubtedly the stable and digitalin the less stable part, as proven by the percentage of digitoxin extractable, according to the opinions of these writers. Recently an observer has found traces of an organic acid which seems to be present in freshly made preparations of digitalis, but which disappears at the time our graphs show marked deterioration, probably combining to form some unidentified substance.

Pomeroy and Heyl found that infusions should be discarded in from three to five days' time, and that the addition of alcohol adds nothing to the stability of the infusion.

Assuming that the pharmacist manufactures the amount of tincture mentioned in the formula of the United States Pharmacopoeia, namely, a liter, we might expect some drug stores to have enough made at one time to last several years, and inquiry along these lines shows this to be a fact. If we have been prescribing 10 or 15 drops of tincture of digitalis, and one of these ancient, deteriorated products was dispensed on a case where digitalis was clearly indicated, we can understand our failure to get a satisfactory result.

One firm has tried to prevent the rapid deterioration by placing a certain number of freshly made tablets, of the whole leaf, in a brown glass bottle, to prevent action of the sun's rays; by placing a dehydrating agent under a layer of cotton at the bottom of the bottle, to absorb moisture, and dating the product, thus seemingly giving us a dependable tablet of the whole leaf.

The whole leaf possesses all the valuable properties of digitalis and is the best way of giving this important drug.

Most of the proprietary preparations are either standardized tinctures or are made from the glucosides, usually digitoxin, and while they have their place in medicine, as in intravenous or subcutaneous injections, they are not to be preferred to the whole leaf. Hatcher and Wilbert⁶ have compared the action and relative costs of the various proprietary preparations with that of the whole leaf, and in each case the whole leaf, or a tincture or infusion made from leaf of good quality, is preferred, although costing far less. For instance, one costly and well-advertised preparation claims to be a solution of amorphous digitoxin, but no such substance is known to science.

Fat-free tincture is found by the same observers to be a weaker preparation, containing less of the active principles of digitalis, when it is less actively emetic, than the official tinc-

ture, and the amount of fat removed is found to be so small that it could not influence the emetic action at all. The difference between the therapeutic and the toxic dose is very slight, and may produce poisonous symptoms without much warning, so it is inadvisable to repeat the maximum dose within six hours, especially by intravenous or subcutaneous methods.

Deterioration of digitalis is further emphasized by the work of E. S. Zueblin,⁷ who has experimented a great deal with a fontactoscope, an instrument constructed for the purpose of determining the amount of radio-active rays emitted by radio-active bodies. A specimen of powdered digitalis was examined on three different dates, at an interval of 323 days and again 136 days later. The sample was kept in a sealed bottle, protected from light and moisture. Marked inferiority of the drug was noticed on the second test and again on the third test. While there is no comparison between the physical radiation and the medicinal value of digitalis, it coincides with what we are trying to prove.

The proper use of a drug involves knowledge of a dose sufficient to produce therapeutic action, the rate and manner of elimination from the body, and its toxic effect. We do not know how digitalis is eliminated, as chemists fail to find it in the excreta, so we assume that it is oxidized in the body.

There is no other drug which requires such careful study in deciding upon a proper dose, as age, sex, weight and the pathological condition must all be considered, since an excessive amount will be toxic, while an insufficient amount barely supplies daily waste, thus producing no result. Pardee⁸ has found that an adult can safely eliminate 22 minims of tincture daily, and that this amount can be continued over a long period of time, thus keeping up the action desired without fear of toxic action. His work on the isolated heart shows that the whole leaf possesses properties not found in the glucosides.

A single dose of digitalis is rarely fatal in a normal individual. I cannot find a death in our records, and H. C. Wood,⁹ a toxicologist of 44 years' experience, knew of only one such case. Hauber of Munich, in 1890, reported such a death, but the fatal dose was not mentioned. That this odd drug has a cumulative effect is very well known, but when this physiological effect is produced, sufficient notice is given by the signs of heart block and by nausea and vomiting. This is due to the effect upon the central nervous system when digitalis is pushed, however slightly, beyond the maximum dose. We should remember that the earlier we recognize the indication for digitalis the more satisfactory the end-result, as

old lesions often respond poorly to the use of drugs.

The danger of single massive doses of digitalis must be appreciated, as the ventricle may lose its inhibitory action on the vagus, and the excessive stimulation of systole may cause death. Any degeneration of the myocardium is a contraindication to the use of digitalis.

There are many methods of computing the amount to give in a single dose, but they should never be given, if the patient has taken digitalis or its preparations, for at least two weeks, and it is advisable that an electrocardiogram be taken, to confirm diagnosis and check up the condition of myocardium.

It has long been thought that high temperatures of the body prevent digitalis from acting on the circulatory system, and clinicians have been warned to avoid large doses in the treatment of pneumonia, as a sudden crisis was supposed to admit absorption of an excessively large amount of digitalis, and toxic action would result. Cohn,¹⁰ at the Rockefeller Institute, feels that this is not true, and advises the use of digitalis in the febrile period of pneumonia, as a routine.

If the case is seen early, he gives half a gram on the first and second days, and again on the fifth and sixth days.

If the case is seen on the fourth day of the disease, he gives a gram, repeating a half-gram on the sixth or seventh day. His statistics certainly support his theory, but digitalis has not been given as a routine on the pneumonia service at the Boston City Hospital and we have had comparable results.

Our studies in cardiac work show that syphilis is a far more frequent offender than is commonly supposed, the Wassermann test being positive in about one-fourth of the mitral lesions, in one-half of the aortic cases, and in two-thirds of the aneurysms. While digitalis treatment is not contraindicated in a case having a positive Wassermann, antisiphilitic treatment is indicated. The symptoms of decompensation due to degeneration of myocardium by syphilis, although shown by the usual signs, have a more serious significance than those due to cardiac failure, and the use of digitalis in these cases is questionable, as the condition is due to myocardial degeneration.

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SUMMARY OF PAPER GIVEN AT THE
CLINICAL MEETING OF THE HEART
SERVICE, BOSTON CITY HOSPITAL

BY WILLIAM H. ROBEY, M.D., BOSTON.

ANGINA PECTORIS WITH AND WITHOUT
CARDIAC SIGNS.

DECOMPENSATION of the congestive type with oedema and cyanosis, often with previous signs of heart disease or other attacks of decompensation is quite familiar and time need not be taken to discuss it. I speak particularly to the house-officers of a type of heart failure not so commonly seen in hospital practice which has the symptom known as angina pectoris as its outstanding feature. Osler stated that in a large institution not more than one case of angina pectoris might be seen in a year while a consultant in private practice may see ten or twelve in the same time. That has been my experience. In a ten-year period in this hospital only sixteen cases are recorded. When angina pectoris occurs in a patient with evidences of arteriosclerosis, dyspnoea on moderate exertion or some form of arrhythmia, the diagnosis is often made with ease but when pain about the heart is complained of without evident cardiac or circulatory signs, the diagnosis is often difficult and sometimes impossible. In a young person without physical signs or limitation of cardiac effort, pain is often due to something else and correction of diet, habits of eating, and the bowels, will stop the pain. If aortic disease or mitral stenosis can be demonstrated, then the pain can be explained, as we know that both of these lesions may cause it. In aortic disease the pain is often about the aortic area, and in mitral stenosis about the area of cardiac impulse. It is not one of the common symptoms of these conditions.

If a middle-aged or old person complains of cardiac pain, it should always be taken seriously whether there are signs or not. The history should be most carefully studied, and, if possible, the patient should be seen during an attack of pain. If that is impossible, then a very thorough history should be obtained of how the pain comes, the area of distribution, the appearance of the face as observed by friends, the subsequent fatigue, and, in some, sweating. Sometimes in early cases the attack is induced by exertion. When it comes on after the patient has gone to bed the prognosis has always seemed to me much more serious. The physical examination should be most searching. An accentuated aortic second and a shortening of the first sound will be of greater value than the finding of a murmur. The rate and rhythm should be observed with care. While the electrocardiogram has not given any positive evidence as yet of coronary disease, the heart should be studied electrocardiographically when possible. A very mild case is now under my

observation. A man of 62 years, but looking 10 years younger who has had attacks of substernal pain localized pretty definitely at the third space and radiating to the arms and fingers; a man of good habits, without history of venereal disease and with a negative Wassermann. The pain was first noticed three years ago after climbing a small hill, and occurred at intervals following exertion for some months. It then disappeared for a year and a half and during this time the patient felt as well as ever. It occurred again a year ago, after he had carried a piece of furniture upstairs. The pain disappeared, but in the last two months it has been more or less evident after walking or going upstairs. Recently it has occurred several times just after going to bed. He has been seen twice by a competent physician, who, not finding any evidence of cardiac disease, has told him the pain is of no consequence. The physical examination of this patient is essentially negative, Wassermann negative, blood pressure 140-100. Heart is normal in size by percussion and the fluoroscope; the great vessels are normal; pulse 76; no arrhythmia, no palpable atheroma. There is an accentuation of the aortic second and a soft blowing systolic murmur. In the x-ray plates at about the third space on each side of the sternum and in the area where the patient complains of pain is an irregular hazy shadow which does not seem to be connected with the heart or great vessels, and which raises the question of the presence of a neoplasm. In view, however, of the rather long history of the case, the splendid general condition, and the lack of physical signs which one would expect to accompany a mediastinal growth, it would seem that such a diagnosis is unlikely. My belief is that this presents the pain of an early coronary sclerosis, and if the patient is careful about exertion I think his attacks may quiet down completely. There is always, however, in such a case the possibility of sudden death, as most of us know by experience.

Another example of the type of case of angina pectoris which may exist without any symptoms whatever referable to the heart is illustrated in the following history:

A man 47 years of age, whose father had died at the age of 71 of angina pectoris, gave a history of freedom from serious infections and was not aware of having contracted any venereal disease. Five years before I saw him he had a pain in the chest radiating to both arms. This condition repeated itself several times and was followed by a year and a half of complete freedom. Five months after I saw him the attacks began again following exertion of any kind, and frequently came on in the early morning after a satisfactory sleep. He had used alcohol moderately and smoked fifteen cigarettes a day. His appetite was extremely good. There was no nocturia. The attacks of pain were intense, located underneath the sternum and radiating

to the shoulders, back and arms. The attack would last sometimes for half an hour, at the end of which time the patient was utterly exhausted and covered with profuse perspiration. He had seen a number of physicians; first, a gastro-enterologist, who had put him through all of the gastro-intestinal tests, with negative findings. He was then under the care of a neurologist for several weeks, who treated him for a neuritis of the left arm. At the time I saw him the physical examination was quite negative. There were no abnormal sounds in the heart. The aortic second was not accentuated, the blood-pressure was normal, the pulse was not atheromatous. The x-ray plates of the heart showed the heart and great vessels were normal. The Wassermann test was negative. An electrocardiogram showed an inverted T wave in leads 2 and 3. The patient was kept in bed at complete rest, and was given antiluetic treatment, notwithstanding his negative Wassermann and sedatives in proper quantities to relieve pain. In spite of this, he continued to have attacks and died suddenly one month later. It is evident because of the almost complete negative findings in the heart and blood-vessels that this patient's condition had existed for several years without diagnosis, and was attributed to the stomach and nerves, but never to coronary disease.

Pain, breathlessness or easy fatigue on exertion are the three outstanding signs of a heart that may soon fail. No matter how slight the physical signs may be in a middle-aged or elderly person the onset of any of these symptoms, alone or in combination, should make the physician cautious. A colleague of mine recently examined a man's heart, pronounced it normal, and told him he might take an extensive trip. When in the far west, he collapsed, was examined electrocardiographically and found to have some form of block. He revived in the hospital, but died a few weeks later. The fact that this patient was frequently awakened in the night with attacks of breathlessness was not brought out at the original examination. We must all be very careful not to overlook important points in the history as well as in the examination.

In the treatment, rest, and sufficient study by all possible means during rest, should be carefully carried out. After rest, a study of effort tolerance should be made. Digitalis, even in the presence of a normal rate and rhythm, is a very excellent addition, provided a potent preparation of digitalis is used. Nitroglycerin, even when the pressure is not high, is often beneficial. Amyl nitrite will generally relieve acute attacks of angina pectoris. It removes the danger and dread of the pain. The diet and bowels should be carefully regulated. Worry is often as large a factor as exertion. Sleep is an important aid which is too frequently overlooked. Morphine alone or in combination with some drug such as five grains of veronal or ten grains of chloral

will frequently give a restful night. Explain to some trustworthy relative how important you think the condition is.

ORGANIZATION OF HOSPITAL AND MEDICAL SERVICES—BUFFALO.

Buffalo, N. Y., June 24, 1922.

To the Editor:

Herewith is sent an important report on the organization of the hospital and medical services of the municipality of Buffalo, prepared by Doctor Haven Emerson of New York at the request of a Citizens' Committee of Buffalo. The Department of Hospitals and Dispensaries of this city having been attacked for inefficiency and maladministration by the Mayor, a committee of 132 citizens felt it proper that a medical expert of national reputation should be called in to make an impartial survey and report.

The facts presented contain many points of general interest. The report goes beyond a mere description of conditions in Buffalo, indicating principles and methods of hospital service, and for the organization of the sources of a large community for the cure and prevention of disease. We regard this report as a contribution to standards of hospital work and the advancement of medical service through providing practising physicians with diagnostic facilities for their patients.

The Citizens' Committee, therefore, has felt that it would be of interest to the general public, and in particular to the physicians and health workers throughout the country. With this in view, an abstract has been prepared bringing out these main points, which accompanies the copy of the report herewith.

WILLIAM WARREN SMITH,
Chairman, Citizens' Committee.

White Building, Buffalo, N. Y.

The report presents the following features:

First—The practical withdrawal of the Mayor's attack.

Second—The organization of the committee and the employment of Dr. Haven Emerson to make a survey and render a report.

Third—Dr. Emerson's report is to the effect that "the Department of Hospitals and Dispensaries of Buffalo has not only emerged unscathed, but with flying colors." Then follows a brief historical sketch of the development of the present hospitals and dispensaries, showing the Buffalo City Hospital 415 beds, the Municipal Hospital 175 beds for tuberculosis and venereal diseases, the Ernst Wende Hospital 140 beds for other communicable diseases, seven health centre dispensaries and a mental disease clinic. In addition to the facilities afforded by the Department of Hospitals and Dispensaries there is the J. N. Adam Memorial Hospital for tuberculosis 350 beds and the Erie County Hospital 300 beds. Privately controlled institutions have an aggregate capacity of 1788 beds, making a total of 3168 available for the city of Buffalo with a population of 506,775, or for Erie County with 650,000.

Standards of hospital service to the community as represented by hospital beds have been worked out by Dr. Emerson and others, and as applied to Erie County would appear as follows:

Kinds of Service,	Number of beds usually needed for 100,000 people.	Needed in Erie County (population 654,000).	Beds provided in Erie County (per 100,000).	Provided in Erie County (population 654,000).
General Medical and Surgical Care	500	3,250	334	2,149
Children	50	325	49	319
Maternity Cases	15	98	37	241
Acute Communicable	50	325	21	135
Tuberculosis	92	600	132	862
Convalescent Care (per 1,000 hospital cases)	7	7
	707	4,598	573	3,726

Even with these facilities there will be serious lack of provision for convalescent care and deficiency in the number of beds for contagious diseases. The general health programme also needs prophylactic dental care, occupational therapy in the hospitals, and nurses in the District Nursing Association who will attend confinement cases under direction of physicians.

The general arrangement and scope of work done in the hospitals at present is commended and figures are given which demonstrate efficiency. The report presents the following criticisms and suggestions:

"It would appear in Buffalo that there is lacking that spirit of professional fellowship and mutual confidence and respect which must be created and cultivated if the five medico-social professions—medicine, nursing, pharmacy, dentistry and social service—are to achieve the results the community has a right to expect, and each develop within its own special field to its full possibilities without sacrifice of the independence or adequate financial emoluments of any one of these necessarily allied professions.

"It is believed that once the public recognizes the need for adequate social service and the physicians accept this new group of associates as trusted allies, the present roughness and mistakes due to misunderstanding and insufficient support will largely disappear.

"It must be a matter of common knowledge among physicians of Buffalo as it is elsewhere that the great reduction in the incidence and deaths from preventable diseases during the past twenty years has been the main factor in altering the character of medical practice and changing the courses of income."

To meet this situation Dr. Emerson makes a number of recommendations, such as further careful study of all public and private health activities, with special reference to tuberculosis, a central association of all the hospitals for the discussion and establishment of common hos-

pital policies, and also to provide for economy through central purchasing, and finally to meet the main need there is recommended a permanent Public Health Committee. On this should be represented the medical profession, also public and private groups interested in health problems; labor, business men, and other citizens. The temporary citizens' committee under whose auspices the investigation was conducted furnishes a nucleus for such an organization. A standing committee of this kind would, it is believed, bring together the points of view of groups that now fail of mutual understanding and tend towards the permanent advancement of medical work and of the larger interests of the community in health and general welfare.

The whole report is a valuable contribution to recognized problems in hospitals and other health service to communities and could be studied to advantage by officials in very many localities.

Book Review.

A Treatise on Glaucoma. By ROBERT HENRY ELLIOTT. Oxford Medical Publications: 1922. 656 pages.

The second edition of this very excellent work now appears after four years, in a more pretentious form, a treatise instead of a textbook.

Glaucoma, it may be said, is one of the most serious problems which confront the ophthalmologist today. It forms one of the principal causes of blindness, a considerable percentage of which might well be avoided if the ophthalmologist were thoroughly conversant with and carried into practice the advances that have taken place in the knowledge of this disease. Colonel Elliott has performed a service to medicine in collecting in this book all that is known of glaucoma up to the present time. It is the best treatise which has appeared on the subject and as such it is recommended to our ophthalmologists for careful perusal and digestion. The second edition has been enlarged in all its parts. We notice many new illustrations, many additional references and an increase of over one hundred pages of subject matter. Only the more important advances can be touched upon.

The important paper of Fuchs on the anatomical variations of lamina cribrosa is noted. In the section on intra-ocular pressure and tension a large amount of new material has been incorporated, especially in regard to the systolic and diastolic pressure in the retinal artery, thus the researches of Magitot, Baillart and others are recorded, but the author rightly concludes that along this line the discussion is still in the theoretical stage and that we must "let our theory building wait on further development of

our knowledge." Nearly fifty pages have been added to the section on diagnosis.

The author's discussion of the true and false glaucomatous halos are most interesting and the measurements of this feature are valuable. The increase of pigmentation in the iris tissue as seen with the slit lamp and noted by Koeppe is mentioned, but no judgment as to its value can yet be given. There is need for a more acceptable method of measuring the corneal diameter and a new Zeiss instrument for this purpose is described. Elliott's careful consideration of the features of the glaucomatous field, the most important single sign in making the diagnosis of the disease and estimating its progress, is well done. The jagged scotomata which he describes as the Elliott sign can hardly be accepted without corroboration and must be regarded as rather fanciful. This sign suggests the cubist influence in ophthalmology. Also the improvement in the field following operation which he speaks of so constantly would seem to be overemphasized.

The writer does not endorse the previously accepted view that operation when the field is cut almost to the fixation point is likely to be followed by loss of central vision. One can hardly agree with his condemnation of the practice of permanent dilatation of the pupil in cases of central opacity of the lens on account of the dangers of rise of tension. True it is that the tension should be carefully measured before advising this procedure.

There is a good historical résumé of glaucoma operations and a handsome tribute is paid to Lagrange for his pioneer work in the development of the modern decompression operation.

The Lagrange operation is, however, hardly brought up to date and the old plates are figured.

Elliott gives a detailed and thorough description of the very valuable and popular operation that bears his own name. There are valuable sections dealing with secondary glaucoma, congenital glaucoma, and the book ends with a chapter on the pathology of filtration.

review the important literature on attempts to use pancreas and pancreatic extracts in the treatment of diabetes, and describe their own method of getting active pancreatic internal secretion by (1) ligating the pancreatic duct and removing the gland ten weeks later, when the acinous tissue has degenerated, leaving the insular tissue intact; (2) the use of pancreas from fetal calves under five months, in which proteolytic enzymes had not yet developed; (3) the use of a sterile extract of whole gland prepared by a method yet to be published and one that is potent but not yet satisfactorily purified.

These were first used satisfactorily on diabetic dogs, then the purified extract was used on seven patients with marked results: a marked fall in blood sugar occurred; in two cases repeatedly examined, the respiratory quotient rose along with the return to the normal blood sugar level, indicating an increased utilization of the carbohydrate; the sugar excretion showed marked decrease, or if the dosage was adequate, disappeared; ketonuria ceased. In agreement with previous observations of others on laboratory animals, it was found that without careful control severe toxic reactions were sometimes encountered, and this will undoubtedly be a factor in the evaluation of the ultimate therapeutic utility of the method. They give tables and charts from which their deductions are drawn.

[A. W. C.]

THE BLOOD CHOLESTEROL, ITS IMPORTANCE AND THE VALUE OF ITS DETERMINATION IN CANCER RESEARCH.

LUDEN, GEORGINE (*Can. Med. Assn. Jour.*, vol. xii, No. 3, March, 1922) concludes as follows: Cholesterol is an important constituent of the blood. There is evidence that the blood cholesterol plays an important part by promoting cell proliferation and combating bacterial invasion. The test for blood cholesterol is not a diagnostic one, but it furnishes valuable information concerning the efficiency of cholesterol metabolism. The activation of cholesterol metabolism after radium treatment demonstrated by the blood cholesterol determinations, and the parallel improvement of patients suffering from malignancy indicate that there is an intimate connection between disturbances, cholesterol metabolism and malignant disease. Cholesterol metabolism can also be improved by dietary measures, suggesting that beneficial effects may be expected from dietary measures tending to reduce the cholesterol intake with the food, combined with radium therapy. Since the life of the cells depends upon their blood supply, the chemical composition of the blood must be equally important; radium treatment changes the chemical composition of the blood, as is shown by blood cholesterol determinations. Spontaneous cures have been observed in well-authenticated, inoperable, "hopeless" cases of cancer; this proves that the body can wage a winning fight against malignant disease; as therapeutic measures had proved ineffective in these cases, some internal readjustment must account for the cures. Chemical investigations will solve the cancer problem by revealing the nature of this internal readjustment.

[A. W. C.]

THE NATURE AND CAUSE OF OLD-AGE ENLARGEMENT OF THE PROSTATE.

WALKER, K. M. (*British Medical Journal*, Feb. 25, 1922), discusses the cause of enlarged prostate in old men, summarizing his remarks as follows:

1. It is impossible to explain enlargement of the prostate by any theory of chronic inflammation alone.
2. Although enlargement may reproduce conditions favorable to the development of a neoplasm, the enlargement itself does not come into the category of true tumors.
3. The condition is in the nature of a fibro-epithelial degeneration, which finds its analogy in the female in sero-cystic disease of the breast.

Current Literature Department.

ABSTRACTORS.

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PANCREATIC EXTRACTS IN THE TREATMENT OF DIABETES MELLITUS.

BANTING, BEST, COLLIS, CAMPBELL, and FLETCHER (*Can. Med. Assn. Jour.*, vol. xii, No. 3, March, 1922)

4. This degeneration may be regarded as an accident occurring during the progress of involution of the genital tract.

5. The cause that determines the onset of the condition is unknown, although it is not improbably connected with a loss of endocrine balance occurring during this period.

6. Prostatic enlargement shows a definite distribution that is anthropological rather than geographical in character. It very rarely occurs amongst Mongolians and Negroes.

[J. B. H.]

METABOLISM OF CHILDREN UNDERGOING OPEN-AIR TREATMENT, HELIOTHERAPY AND BALNEOTHERAPY.

HILL, L., and CAMPBELL, J. A. (*British Medical Journal*, February 25, 1922), discuss this important subject of the results of open-air treatment, sunlight treatment and bath treatment of children with particular reference to metabolism. His remarks, which are of interest and value, are summarized as follows:

1. Observations during the past summer on metabolism of children crippled with surgical tuberculosis and lying fixed in splints in bed and more or less nude, at Lord Mayor Treloar's Hospital, Hampshire, are described. Their metabolism on the average was increased 40 per cent. above the standard, for the same weight, of children confined in a closed calorimeter.

2. After three months' treatment, including graduated exposure to open air and heliotherapy, their metabolism out of doors was 20 per cent. above that in well-ventilated cubicles soon after admission.

3. Children who had been treated for many months showed high metabolism in the out-of-door conditions, those who pigmented well in the sun giving about the same figures as those who did not pigment well, after making allowance for weight. The former gave the better figures for weight.

4. It is considered that the rise in metabolism caused by heliotherapy *per se* is insignificant compared with that caused by exposure to open air. At the same time the value of heliotherapy as a factor towards arrest of the disease is not disputed.

5. Children on admission in well-ventilated cubicles gave results about 20 per cent. higher than basal standards for closed calorimeters. It is considered that the open-air conditions in the former were mainly responsible.

6. Balneotherapy increases metabolism much above the resting level.

7. The bodily tone and general condition of the children under the specially graduated treatment is remarkable when the long period of immobilization in splints in bed is considered. The treatment might be applied with advantage in other cases involving long confinement in bed.

[J. B. H.]

THE NATURE AND SIGNIFICANCE OF HEART SYMPTOMS.

MACKENZIE, J. (*British Medical Journal*, April 1st, 1922), in this paper discusses the stimuli concerned in the heart beat, summarizing his remarks as follows:

1. The stimulus for the normal rhythm of the heart arises in tissue specially evolved for the purpose. The stimulus in auricular fibrillation arises in tissue specially evolved for contraction, the stimulus production being merely an incident of the contraction.

2. There is a remarkable difference between the rhythms which arise in the conducting and contracting systems of the heart, due to the difference in the stimuli. These differences are shown especially in the response of the ventricle. The ventricular systole in the normal rhythm, as well as in those rhythms

arising in any part of the conducting system, is complete and effective.

3. The ventricular systole, when the stimulus arises in the muscle cells of the auricle, is often partial and ineffective, and when it arises in the muscle cells of the ventricle it is always ineffective.

4. When the contraction starts in the muscle cells of the auricle, as in auricular fibrillation, the stimulus which arises is much more sensitive to agents which favor or retard its passage to the ventricle.

5. The effect of digitalis is strikingly different, it having a far greater effect on auricular fibrillation and flutter and on the idioventricular rhythm than on any rhythm arising in the conducting system.

In the *British Medical Journal* of April 8th, 1922, Dr. Mackenzie takes up the reflex process and the heart beat, summarizing as follows:

1. The mechanism concerned in regulating the heart beat belongs to the vital process included under the term "reflex".

2. The cells taking part in this mechanism belong to two groups: an extrinsic, connected to the nervous system by the vagus and sympathetic nerves, and an intrinsic, which includes the sino-auricular and auriculo-ventricular nodes, and the Purkinje cells in the bundle and auricles and ventricles.

3. Agents of disease (toxins) which modify the rate and rhythm act on different parts of this mechanism, and certain disease agents produce characteristic effects.

4. Drugs that influence the rate and rhythm of the heart act in the same way, some of them also producing characteristic effects.

5. As toxins act on the same parts as drugs the effects of drugs will be modified by the effects of the toxins.

6. Before the effects of a remedy can be investigated it is necessary to know if the toxins have not already produced an effect which will interfere with the action of the remedy.

7. The kind of knowledge which disturbances of the reflex process reveals is limited to the variations in rate and rhythm, and they give no information regarding the functional efficiency of the heart.

[J. B. H.]

"PERNICIOUS ANEMIA" AND "SEPTIC ANEMIA."

HUNTER, W. (*British Medical Journal*, March 18, 1922), discusses pernicious anemia and what he calls septic anemia as an independent anemia and as a complication of pernicious anemia. He presents various illustrative cases and an elaborate bibliography. His article, however, is not particularly conclusive.

[J. B. H.]

MINOR DISPLACEMENTS OF THE UTERUS AS A CAUSE OF DISABILITY IN WOMEN.

FAIRBAIRN, J. S. (*British Medical Journal*, April 15, 1922), discusses what he calls the minor displacements of the uterus, summarizing his remarks as follows:

1. Always look beyond the mere position of the uterus and do not ascribe symptoms to retroversion.

2. In retroversion accompanying pelvic floor prolapse, subinvolution, pelvic inflammation, and tumors, the disability is due to the primary condition and not to the position of the uterus.

3. Retroversion after child-bearing with subjective symptoms of prolapse is correctly treated by replacement of the uterus and a pessary, provided the relief of fatigue is also secured and attention paid to the general health, mental and physical, and to the improvement of the abdominal and pelvic muscles.

4. If recovery does not follow after six to twelve months, operative measures will give better results than continued pessary treatment, and probably perineal repair and plastic vaginal operations will be more satisfactory than those of the hysterectomy type.

[J. B. H.]

THE VALUE OF THE COMPLEMENT FIXATION TEST IN THE EXCLUSION OF ACTIVE PULMONARY TUBERCULOSIS. PUNCH, A. L., and GOSSE, A. H. (*British Medical Journal*, April 1st, 1922), present a record of twenty cases in which pulmonary tuberculosis was suspected and in which the complement fixation test was of value in proving that it was not present in any active form. They discuss this general subject and on the whole are of the opinion that this test is of distinct value in ruling out active pulmonary tuberculosis.

[J. B. H.]

PNEUMONIA NEONATORUM.

BROWNE, F. J. (*British Medical Journal*, March 25, 1922), discusses pneumonia of the newly-born infant, concluding as follows:

1. Pneumonia is a common cause of death amongst infants during the first week after birth, and accounted for 21 deaths out of 80, or 26 per cent.

2. It is sometimes due to ante-natal infection from premature rupture of the membranes, and the infant may be not only infected but also suffering from an advanced stage of pneumonia before its birth.

3. In the infant there is little defensive reaction as compared with the adult against the infecting agent.

4. Pneumonia in the first few days of life is an extremely insidious disease, generally presenting no characteristic symptoms which might lead to its presence being suspected and the carrying out of physical examination.

5. Even at *post-mortem* examination the presence of the disease may be missed if microscopic examination of the lungs is not carried out.

6. "Acute hemorrhagic pneumonia of infants" forms a distinct clinical and pathological entity which gives rise to sudden death in children who may be apparently previously healthy, either full-time or premature. It follows acute congestion of the lungs, the fragile vessels in the alveolar walls rupturing and flooding the alveoli and bronchi with blood. The sudden death is preceded by epistaxis and blanching of the skin, and the etiological factor may be organismal or possibly of the nature of an immediate anaphylactic reaction.

7. The importance of avoiding premature rupture of the membranes during labor, and of taking every precaution to safeguard the newly-born infant against infection, cannot be over-emphasized.

[J. B. H.]

STUDY IN EXPERIMENTAL RICKETS.

POWERS, G. F., ET AL. (*Johns Hopkins Hospital Bulletin*, April, 1922) contribute another article excellently illustrated on experimental rickets, summarizing their opinions as follows:

1. The object of the experiments was to determine whether or not radiations from a mercury vapor quartz lamp prevent the development of rickets in the rat.

2. A diet was employed which at room light regularly gives rise to a disease identical in its essential features with rickets as seen in the human being. The diet was high in calcium, low in phosphorus, and was insufficiently supplied with fat-soluble A. In other respects it was well constituted.

3. Nineteen rats were placed on the diet. Ten were exposed to radiations from a Hanovia "Alpine" mercury vapor quartz lamp for varying periods of time daily over a period of sixty-four days. Nine rats were kept under conditions of ordinary room light as control animals.

4. One of the control animals was killed after thirty-eight days; another after fifty-eight days, and

the remaining seven after sixty-four days. All of these animals showed gross and microscopic evidences of rickets.

5. The ten rats exposed to the radiations from the mercury vapor quartz lamp were killed after sixty-four days. These animals were free from rickets, both grossly and histologically.

6. The beneficial effects of the radiations from the mercury vapor quartz lamp were not limited to the skeleton, since the condition of the rayed animals underwent a general improvement.

7. The effects of the radiations of the mercury vapor quartz lamp on the growth and calcification of the skeleton of the rat and on the animal as a whole seem to be similar to, if not identical with, those brought about by direct sunlight and by cod-liver oil.

[J. B. H.]

X-RAYS IN DERMATOLOGY.

SEMON, HENRY C. (*The Practitioner*, April, 1922) gives an interesting and practical summary of diseases of the skin which he believes will be benefited by x-ray treatment. He summarizes his remarks as follows:

"If the reader will survey the dermatological conditions that have been labelled in this article as amenable to treatment by radiotherapy, he will be struck by the extremely interesting fact that not one of them is a dermatosis in which hyperaemia is an outstanding feature. This negation can be balanced by an equally important affirmation, viz., that each and all of them are the result, in some measure, at least, of *active cell growth*, it may be more or less simple hypertrophy as in warts, or hypertrophy and dystrophy combined, as in psoriasis and chronic eczema.

"It thus becomes evident why diseases such as rosacea and acute lupus erythematosus are refractory, and may be seriously aggravated by x-rays. They are hyperaemic conditions, subacute in type, and only resulting in hypertrophy in exceptional cases, and after long duration.

"A consideration of these data will enable even the inexperienced to recognize the type of case which is most likely to respond favourably, and will help him to realize the limitations and contra-indications of this most potent therapeutic weapon." [J. B. H.]

SOME REMOTE EFFECTS OF TONSILLITIS.

PAVEY-SMITH, A. B. (*The Practitioner*, April, 1922), discusses the remote effects of tonsillitis and recapitulates his opinion as follows:

1. The tonsil can act as a primary focus in the production and maintenance of certain systemic diseases.

2. Its condition when infected may be so latent, its past history so blameless, and its power for evil so great, as "to deceive the very elect."

3. As soon as such a tonsil is condemned it should be removed without delay.

[J. B. H.]

ON PUBERAL MAMMARY HYPERTROPHY.

GREIG, D. M. (*Edinburgh Medical Journal*, April, 1922), discusses the subject of hypertrophy of the breasts during the age of puberty. He presents in tabular form a list of previously reported cases and discusses treatment. He believes that this condition is a disease by itself with distinctive symptoms, running a definite course, urgently necessitating definite surgical procedure.

[J. B. H.]

CHRONIC INTESTINAL STASIS.

LANE, W. A. (*The Practitioner*, May, 1922), emphasizes his already well-known theories in regard to chronic intestinal stasis and its treatment, still maintaining that operative methods are the only rational means of treatment. He admits, however, that there are many subjects in whom the condition is beginning, or is not advanced, for whom it is possible to advise a system of medical and other treatment to obviate the course of operative measures. [J. B. H.]

A METHOD OF USING TUBERCULIN.

ROBERTSON, R. (*The Practitioner*, May, 1922), is an enthusiast in the use of tuberculin for the treatment of tuberculosis of the lungs as well as in glands and bone and joint affections, invariably using a mixed bovine and human tuberculin. This article is of interest as showing how far an enthusiast along one line can blind himself to the value of other methods of treatment and to the limitations of his own particular pet method. What he says should be taken as a guide of what not to do rather than the reverse. [J. B. H.]

A NEW IMMUNIZING TUBERCULOSIS VACCINE: RESULTS OF TREATMENT.

RAW, N. (*The Practitioner*, April, 1922), reports the results of his treatment of 88 cases of tuberculosis with a new form of tuberculin. This vaccine, or tuberculin, prepared as it is from an avirulent culture, can be used with complete safety, and at any stage of the disease, and even in the advanced cases he claims to have seen great relief from night sweats and other toxic symptoms.

Nathan Raw is widely known as a tuberculin enthusiast, and as such has done valuable work. I believe it to be distinctly unfortunate, however, to emphasize in the minds of the general medical public any one method of treatment such as this. [J. B. H.]

NEW TREATMENT OF GONORRHOEAL RHEUMATISM.

ROSS, A. O. (*Edinburgh Medical Journal*, May, 1922), writes an enthusiastic report of the results of his treatment for gonorrhoeal rheumatism, consisting chiefly of the intravenous injection of a preparation known as Electragol. He reports remarkably good results in five cases, and believes that, given as he advises, it appears to be a specific in relieving pain and reducing inflammation. Bad effects are purely ephemeral. Along with this treatment, prostatic massage and vaccine therapy will be of assistance. [J. B. H.]

THE COMPLEMENT-FIXATION REACTION IN TUBERCULOSIS.

SMITH, A. N. (*Edinburgh Medical Journal*, May, 1922), in an article continued from the previous number of the Journal, concludes as follows concerning the value of the complement-fixation reaction in tuberculosis:

1. In a clinically suspicious case, where the Wassermann is negative, a positive complement-fixation reaction is strong presumptive evidence of tuberculosis.

2. In a clinically tuberculous patient, a positive reaction denotes activity of the lesion.

3. Repeated negative reactions may be taken to

indicate either the absence of tuberculosis, or that a lesion previously active has become inactive. A single negative is of little or no value in a clinically suspicious case.

4. The reaction may be negative in far-advanced cases dying of the disease.

5. A positive reaction is most likely to be found in patients where the presence of tubercle bacilli in the sputum, or the clinical signs and symptoms render the test unnecessary for diagnosis.

6. Non-specific fixations may occur, notably where the serum gives a positive Wassermann reaction.

7. The intensity of the reaction seems to bear no relation to the patient's power of resistance or to the degree of severity of the infection. [J. B. H.]

SOME POINTS IN THE DIAGNOSIS OF LATE HEREDITARY SYPHILIS.

BEESON, B. BARKER (*Illinois Medical Journal*, Sept., 1921). There are contained in this article discussions on the various means of diagnosing late hereditary syphilis. The author differentiates three means: by general physiognomy examinations, by the Wassermann reaction, and, in doubtful cases, with negative Wassermann reactions, by the therapeutic test. The following conclusions are significant:

1. Late hereditary syphilis is a remarkably protean affair, and may simulate, as does the acquired form, any known disease.

2. There are certain stigmata, such as the Hutchinson triad, the sabre-like tibia, the matiform skull, and the peribuccal scars, which may be said to be almost pathognomonic of that disorder.

3. From the standpoint of late inherited neurosyphilis, the presence of the Argyll-Robertson pupil, as well as absence of the patellar and tendo Achillis reflexes, are of extreme importance.

4. The Wassermann reaction is a valuable aid, but should not be permitted to displace sound clinical judgment. It should be regarded as a valuable symptom when present. Its reactivation is also possessed of a certain value, but, like the Wassermann, does not possess an absolute value.

5. The therapeutic test has been and remains a tried and true friend.

SERIES ON PRACTICAL OBSERVATIONS IN SYPHILIS BEGINS.

HAGEN, H. H. (*American Journal of Syphilis*, Jan., 1922), begins the first of a series of articles on the practical observations in syphilis. The author is emphasizing in this series the practical application, with the set purpose of instructing the general practitioner who is occasionally called upon to handle syphilis. The first article consists of three sections: Introduction, Etiology and Clinical Course. The discussion is thorough and uninvolved, and gives evidence of unquestionable value to the literature on syphilis.

PAY CLINICS FOR VENEREAL DISEASE.

THOMSON, ALEX. N. (*Modern Hospital*, March, 1922), says the pay clinic was established for the accommodation of those venereal-disease patients who were too poor to afford treatment by a well-qualified practitioner, and yet were economically above those who were admitted to dispensary service. At present, even though they are entitled to dispensary service, they do not want to avail themselves of what they term "mere charity."

The theory upon which the pay clinic is based is better specialized medical service within the reach

of the average individual. The need for low cost and high-grade service is especial in the case of the venereal diseases. With proper personnel, ethical publicity, social viewpoint, public-health ideas, and modern professional procedure, a clinic can be maintained to treat those individuals who can receive treatment in neither the dispensary clinic nor from the private specialist.

The pay clinic is by no means a competitor of the private physician. Not over two per cent. of its patients could afford private treatment. Private treatment costs from \$300 to \$400 per year, whereas the pay clinic affords equivalent treatment for \$100 to \$125. This rate, which is a considerable saving for the patient on the one hand, affords the physician a reasonable compensation for his services. He gets for his clinical work \$5.00 an hour, working six hours a day, six and one-half days a week. This amounts to \$10,000 a year, full-time schedule, a net income greater than the average medical man's grand total with uncollectible bills included. He can afford to devote some hours a week upon a purely selfish basis.

From the inception of the pay clinic, it has developed along various lines in various places. Some have been affiliated with hospitals or dispensaries, such as the Boston and Brooklyn dispensaries. Others are separate entirely. It is the latter type which is growing more popular.

Group medicine frequently resolves itself, in the final analysis, into the private pay clinic. Hitherto nothing better has been offered. It can administer salvarsan for \$5.00 and compensate the administrator. This cannot be accomplished by the private physician. The business principle of reducing cost as the volume of production increases applies, with certain modifications, to medical practice.

HEMOLYZING TEST FOR DRUGS.

PEYSER (*Wien. klin. Woch.*, March 9, 1922), from Hamburger's pediatric clinic at Groz, reports a series of experiments on hemolysis as a criterion for the infiltration formation of drugs. He finds a parallelism between hemolysis and tendency to infiltration formation, except in the case of salvarsan, and concludes that in testing new pharmacological preparations hemolysis indicates the probability of infiltration formation on subcutaneous injection. [R. M. G.]

CHRONIC BACILLARY DYSENTERY.

KLING (*Wien. klin. Woch.*, March 16-23, 1922), in a continued article, presents a clinical study of chronic bacillary dysentery and colitis gravis, reporting 18 cases of chronic colitides. He believes these conditions due to many factors of causation combined with constitutional or accessory phenomena which depress the tendency to recovery. [R. M. G.]

SALVARSAN DERMATITIS IN ANTILUETIC TREATMENT.

KLOOR (*Wien. klin. Woch.*, March 23-30, 1922), in a continued article, reports from Finger's skin clinic at Vienna a series of 33 cases of dermatitides following salvarsan administration. He finds these occurring predominantly in women, a result which agrees with the statistics from Köln. [R. M. G.]

BLACKWATER FEVER.

ROY (*Ind. Med. Gazette*, March, 1922) describes blackwater fever as it occurs in the Uduars, India, and

its treatment of the same. The disease is preceded by a malarial attack and generally develops in the course of one. It is frequent in the rainy season which corresponds with the malarial season of the place. The onset is with a chill, sometimes a severe one, which may be followed by others. Fever is very irregular, ranging from 98° to 101°. The urine becomes dark at the very beginning, and varies in color from port-wine to black, according to the severity of the case, being darkest at the time of a chill. The quantity of urine diminishes and micturition is frequent and uncomfortable. Jaundice is usually present, varying from slight coloring of the conjunctivae to deep icterus of the whole body. Vomiting sometimes occurs and may be very troublesome. In severe cases delirium and incontinence are not uncommon. In fatal cases, death usually comes from sudden heart failure, although death in coma occasionally occurs.

The writer gives his patients a preliminary calomel purge. The following mixtures are then used.

1. Soda Bicarb., gr. x; Soda Citrate, gr. x; Potass. Acetate, gr. x; Potass. Bicarb., gr. x; Liquor Ammon. Acetate 5 ii; Tr. Strophanthor M v; Water, ad 5 i (one dose).

2. Extr. Cassia Beareana liq. 5 ss; Liquor Strychnine, M v; Water, ad 5 i (one dose).

These mixtures are used alternately every three or four hours, according to the severity of the case. In addition, one pint of salt solution is given by rectum every four hours. If the urine becomes very scanty, hot fomentations are applied over the kidneys. Soda water is given freely. Quinine in full doses is given if fever persists after hemolysis, and all other symptoms have subsided. Absolute rest in bed is necessary, as sudden heart failure is a very real danger. [L. D. C.]

RESECTION OF THE LUNG FOR SUPPURATIVE INFECTIONS WITH A REPORT BASED ON 31 OPERATIVE CASES IN WHICH RESECTION WAS DONE OR INTENDED.

LILIENTHAL, HOWARD (*Annals of Surgery*, March, 1922), writes as follows:

Chronic pulmonary suppurations, wholly or partially of the bronchiectatic type, are rarely curable without the extirpation of the pathological focus.

The surgical removal of a single pulmonary lobe for chronic pus infection has a mortality of about 12 per cent. The danger is much greater when more than one lobe is infected, or in the presence of other complications.

Remissions of weeks or even months may occur spontaneously.

Palliative operations may be followed by improvement, rarely by apparent cures.

The commonest cause of the disease is infection due to the aspiration of infected material during tonsillectomy.

Radical operation should not be undertaken short of several months after the onset unless the disease is obviously spreading. The proper type of operation should be determined only on full exposure by thoracotomy. [E. H. R.]

THE PATHOLOGY OF LUNG SUPPURATION.

ASCHNER, P. W. (*Annals of Surgery*, March, 1922), states that lung suppurations may be divided into:

1. Bronchiectasis, a general disease of the bronchi in one or more lobes.

2. Bronchiectatic abscess, a localized suppurative process in the course of a bronchus, and thus far observed only in post-tonsillectomy cases.

3. Suppurative pneumonitis, a diffuse purulent process.

4. Extrabronchial abscess, a localized purulent process.

Also, that certain interesting histological changes have been observed:

1. Metaplasia in bronchial epithelium.
2. Epithelial lining of bronchiectatic abscess and some smaller abscesses of Group 3.
3. Proliferation of smaller bronchioles and air passages resembling proliferation of the bile passages in portal cirrhosis. [E. H. R.]

ACUTE PERFORATED ULCER OF THE STOMACH, OR DUODENUM.

STEWART, G. D., and BARBER, W. H. (*Annals of Surgery*, March, 1922). The report made by these authors is based upon 24 acute perforated ulcers of the stomach and duodenum coming under the department of surgery during the last five years. All were given a chance of operative recovery, and with the single exception of one three-day and one two-day perforations, all survived. The operative procedure in each instance was inversion and drainage with or without plication and omental grafting. Gastro-enterostomy has not to date appeared indicated in the subsequent courses of these patients. The rationale of inversion appears further borne out by a study of the surgical pathology of perforation in the normal stomach. [E. H. R.]

POTENTIAL MALIGNANCY IN EXSTROPHY OF THE BLADDER.

SCHOLL, ALBERT J. (*Annals of Surgery*, March, 1922), presents an article based on nine cases at the Mayo Clinic and reviews the subject adequately, and makes the following statements in conclusion:

Exstrophied bladders that are subject to constant irritation and trauma have an extensive glandular covering, the result either of metaplasia from the normal covering or of hyperplasia of glands in the mucosa. Such glandular structure often shows characteristics approximating malignancy. In nine cases of exstrophied bladder, in which material for histologic study was available, two were definitely malignant, and two showed atypical cellular formation varying markedly from the normal. In the reported cases of malignancy of exstrophied bladders, which are relatively frequent, the growths were adenocarcinomas. This glandular malignancy is the type that would develop from irritation and hyperplasia of glandular structures. [E. H. R.]

REACTION OF THE BLOOD IN RELATION TO DYSPNEA.

FRASER, ROSS, and DREYER (*Quarterly Journal of Medicine*, April, 1922), made observations on the hydrogen ion concentration of arterial and venous blood, in health, and in patients suffering from cardiac insufficiency and uremia. They used a modification of the dialysis method of Levy, Rountree, and Marriott.

In healthy subjects they obtained figures for P.H. closely approximating to 7.68, with little variation between arterial and venous blood. In all of seven cases of valvular heart disease with severe decompensation they found an alkalemia (alkalosis), the highest P.H. found being 7.95; there was no relation between the P. H. and the degree of dyspnea. This is in striking contrast to the acidosis frequently found by them and by previous observers in chronic nephritis; their lowest figure was 7.37. In two of their cases of uremia a marked acidosis was found in the absence of dyspnea.

It is evident, therefore, that the reaction of the

blood is not the only, nor even the principal factor, in the production of dyspnea. [W. T.]

SYPHILIS OF THE STOMACH.

McNEE, J. W. (*Quarterly Journal of Medicine*, April, 1922), reports a case of gummatous ulceration of the stomach which is unique in that spirochetes were demonstrated in the lesion. The occurrence of gumma in the stomach, while well established by clinical evidence, has been regarded with scepticism by some pathologists. McNee has removed the last doubt by demonstrating the treponema pallidum in large numbers in the lesion.

The chief importance of gastric gumma lies in its close resemblance to carcinoma. All of the reported cases have shown (1) a palpable tumor, (2) cachexia and (3) achlorhydria. The frequency of perforation is noteworthy, and is explained by the extensive necrosis which is met with in the active stages of the process. The histology is similar to that of tertiary lesions elsewhere, the active stages showing large amounts of granulation tissue infiltrated with round cells and with a marked tendency to necrosis, and no signs of arterial disease, while the stage of repair is characterized by the formation of scar tissue and by endarteritis. No giant cells were encountered. A review of the literature is given. [W. T.]

PATHOGENESIS OF CIRRHOSIS OF THE LIVER.

CHVOSTEK (*Wien. klin. Woch.*, April 27-May 4, 1922), in a continued article, discussing the pathogenesis of cirrhosis of the liver, concludes that this condition occurs only in persons with a connective tissue diathesis, in whom degeneration stigmata are found as tokens of abnormal developmental processes. [R. M. G.]

UROCHROMOGEN EXCRETION IN GYNECOLOGY.

KLAFTEN (*Wien. klin. Woch.*, May 11, 1922), in an exhaustive chemical and clinical study from Pebab's Gynecology Clinic in Vienna, concludes that there is no specificity of the urochromogen excretion in diseases of women, but that this reaction is of value in chronic and general conditions rather than in acute infections. [R. M. G.]

ARSENIC.

ULLMANN (*Wien. klin. Woch.*, May 18-25, June 1, 1922), in a continued article, discusses extensively the action of arsenic, arsenic habitation, and arsenic poisoning, with especial reference to the various therapeutic methods of administration. He does not, however, mention the selective toxic effect of arsenic on the optic nerve. [R. M. G.]

RESIDUAL LACTATION ACINI IN THE FEMALE BREAST.—THEIR RELATION TO CHRONIC CYSTIC MASTITIS AND MALIGNANT DISEASE.

McFARLAND, J. (*Archives of Surgery*, July, 1922), presents a 64-page article on this much-discussed subject. Each page contains an excellent microphotograph of specimens under discussion. The article is of interest and value. The following conclusions are reached:

1. The breasts of young virgins are composed of a stroma of pure fibrillar tissue which shows an increasing mucinoid transformation with increase of

years. Into the stroma, adipose tissue begins to find its way toward middle life, increasing until in old age the stroma is largely fatty. The parenchyma of the virgin breast always contains many canellated ducts. It may be without lobules, may contain only rudimentary lobules, or may contain well developed lobules in rare cases.

2. The mammary lobule develops in response to stimuli that may be either local or general. Pregnancy is its chief source, and it seems to be only under its influence that full lactation hypertrophy is reached. The lobules arise through budding from the ducts as determined by the stimuli. At any stage of development, the disappearance of the stimulus is followed by retrogression or involution of the lobule, whether throughout the breast or locally.

3. The lobules constituting the parenchyma of the breast in different pregnancies are not necessarily the same. There is some reason to suppose that for each pregnancy there is a different crop of lobules.

4. Involution, the atrophy of the no longer needed lobules is a complicated process whose details vary in different individuals, in the different breasts of the same individual, and in different parts of the same breast, according to local and general conditions.

5. One of the most important sources of the modification of involution is retention of secretion. Its effect is in proportion to its extent and distribution, and is without regularity.

6. Its most striking result is the appearance of residual lactation acini.

7. Residual lactation acini are harmless decadent structures having no significance in respect to the subsequent appearance of malignant disease.

8. The accumulated cellular and amorphous débris resulting from involution sometimes obstructs the outlets of the ducts and acini, leading to retention of secretion and exudation of fluid with cyst formation. The cysts may result from dilatation of either the ducts or the residual lactation acini.

9. The cysts may be a size varying from that of a pin-head to a hen's egg, and may be single or multiple, uniformly disseminated, or collected in groups. They usually have smooth walls and clear serous contents.

10. The pressure exerted on the surrounding tissue by the growing cyst gives rise to sensory disturbances that vary in intensity according to the firmness or softness of the stroma. In a breast with stroma largely mucinoid or adipose, they may occasion no symptoms.

11. The cysts are benign and harmless. If they become large their excision may be indicated to make the patient more comfortable.

12. Cancer cysts are not specific entities. They are the result of the accidental coexistence of cysts and cancer in the same breast. Original contiguity followed by increase in the size of each determines final continuity.

13. The so-called chronic cystic mastitis is not inflammatory, and is not a pathologic entity; it is nothing but a result—or, at most, a perversion of involution.

14. It would, therefore, be desirable to abandon the term, and call the condition "cystic disturbance of the breast," or if it seems better to retain one of the older designations, that of Warren—"abnormal involution"—is probably least objectionable. The only difficulty lies in clearly defining when the process of involution can be said to become abnormal, when it is so diversified.

15. The term "adenoma" should be used only when speaking of the encapsulated tumors of the breast. Parenchymatous increases of unencapsulated or diffused form are hypertrophies, and not related to tumors.

16. There is no "cyst adenoma" of Schimmelbusch.

The term is objectionable because it makes it appear as though a tumor existed where no tumor is. The appearance on which the name depends is the result of involution to which the name residual lactation acini has here been given, and which can easily be found in one fourth of all breasts that have lactated.

[E. H. R.]

THE PROPER TREATMENT OF CHRONIC MALIGN DISEASES OF THE SUPERFICIAL LYMPH GLANDS.

YATES, JOHN L. (*Archives of Surgery*, July, 1922), goes into a rather lengthy discussion of this condition and presents an article profusely illustrated with excellent drawings of the very radical technic of complete excision of all of the superficial lymph nodes of the body, i.e., neck, axilla and groin. He believes that the removal of such areas is an advance in the treatment of this disease and presents the following summary:

There are good reasons for the universal dissatisfaction with the results of present methods of treating malign diseases. Failures are partially attributable to late diagnosis and delayed treatment; but they are also due to a concentration of medical activities upon signs and symptoms of disease rather than upon the real factor that determines the outcome—the defensive capacity of the individual.

Progress is impeded at the present time by too great expectation from the searches and researches devoted to the discovery of "cures." A very natural and human desire for a panacea may one day be gratified, but, judging from the past, that day is still remote. Meanwhile the clinicians who are treating patients must make advances with the means at hand if they recognize their responsibilities and their opportunities. There is ample reason to believe that individuals vary in susceptibility to malign diseases and also in susceptibility to their ravages once they are established. Treating malignant diseases has accomplished relatively little. Treating the patient to decrease susceptibility has accomplished a great deal in tuberculosis and can be extended to other malign affections with but one risk—that of benefit.

A logical method might well be made to combine all that is known to be effective in the treatment of disease with all that is known to be beneficial in treating the individual. Such therapy could be called scientific, and no other. If it is to be adopted, we will have to stop drugging ourselves with statistics because scientific treatment can no more be determined by statistics than it can be instituted for them. Figures compiled today upon what seem to be facts, tomorrow have little foundation in fact. Results are proof; and when favorable results are obtainable, figures are no longer manipulated to establish that fact.

In combating disease that can persist throughout a patient's life and probably does so persist, it is manifest folly to speak of surgical cures or cures of any kind. The term "cure" implies permanency, and when used in this way it is doubly harmful. It releases patients from their obligation to take care of themselves and absolves their physicians from their lasting responsibility in what has become preventive therapy. Deaths due to avoidable mistakes in treatment are no less unfortunate whether they occur in ten days or in ten years.

[E. H. R.]

(Ed. Note.—This procedure might seem reasonable were it not for the well-known fact that this particular disease under discussion is just as liable to have an extensive involvement of the deeper glands of the body as well as the more accessible superficial ones. Therefore, it is hard to understand how the removal of the superficial lesions should in any way affect the course of the disease.)

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THE SHRINERS' HOSPITALS FOR CRIPPLED CHILDREN.

THE Ancient Arabic Order Nobles of the Mystic Shrine, the playground of Masonry, has assumed a most interesting and important medical and social responsibility. This responsibility is the rehabilitation of the needy crippled child. The membership of the order in the United States, Canada and Mexico is very large and is under one jurisdiction. The annual conventions are attended by thousands upon thousands and are marvelous and surprisingly elaborate displays. Partly hidden by their play, a very keen social consciousness has been revealed. They are convinced for the moment that the needy crippled child most merits their help.

To this end they have levied a regular annual assessment upon every member, which produces an income of considerably over a million dollars a year. They have appointed a board of seven trustees, made up of men of large business, political and professional experience, and have given them complete power to expend this large annual income. This board of trustees has decided to build forty 50-bed modern hospitals in those sections of the United States and Canada where the need of service to the crippled child is most acute. The trustees have appointed an advisory board of five orthopaedic surgeons to assist them in working out their medical prob-

lems. To this advisory board they have delegated the authority to nominate the chief surgeons of these hospitals. They have agreed to give these chief surgeons generous salaries for half-time work, and almost complete authority over the professional management of these hospitals. They desire to make these hospitals teaching hospitals with every facility for the highest grade of surgical and research work. There is to be no racial or religious distinction as to the type of patients to be admitted.

Four hospitals are at present under active construction, one at St. Louis, whose chief surgeon is to be Dr. Nathaniel Allison, Dean of Washington University Medical School; one at San Francisco, whose chief surgeon is to be Dr. Walter I. Baldwin, head of the Department of Orthopaedic Surgery in the University of California Medical School; one in the Twin Cities of Minneapolis and St. Paul, whose chief surgeon is to be Dr. Wallace H. Cole; and one at Shreveport, La., whose chief surgeon is to be Dr. Guy A. Caldwell. Other hospitals have been authorized in Canada, Virginia, Oregon, Pennsylvania, and the New England States.

This far-reaching endeavor surely offers a great opportunity to orthopaedic surgery, but more important than this, is the stirring fact that a great body of men have accepted a continental responsibility. They have distributed the financial load so that it becomes an insignificant personal burden which, when thus assumed, swells into a splendid grand total. If this fund be wisely administered, there is possibility of great accomplishment. The widespread participation is the secret of its success and the earnest of its permanence. Other foundations may yield for the time being more money, but they lack the broad stimulation for service which this movement has furnished to the members of the order and may well engender among other great groups. We are aware of no more significant charitable movement which has occurred in our national life.

ACTIVITIES OF THE LIFE EXTENSION INSTITUTE.

THE annual report of the Life Extension Institute, Inc., issued by the President as a letter to the Hygiene Reference Board of the Institute, shows a continued increase in the activities of the organization.

Three phases of its work are particularly noteworthy. The Institute has made an effort to secure contracts from Life Insurance Companies for the annual examination of their policy-holders. Seven companies have already entered into such contracts. The Metropolitan Life Insurance Company, in a statistical study of cases examined, found a reduction in mortality of 28 per cent. among the policy-holders, examined by the Institute in 1914 and 1915, and

a reduction of 67 per cent. in the mortality of those found to be impaired.

Investigations conducted by members of the Institute have been presented in "Health Building and Life Extension; a discussion of the means by which the Health Span, the Work Span, and the Life Span of Man, can be extended," by Eugene Lyman Fisk. Dr. Fisk has also prepared a volume for the "American Viewpoint" Series, adapted to readers of seventh grade intelligence.

The New York office of the Institute now has a staff of about thirty physicians, whole time and part time, and 120 technicians and lay employees. The Institute has not practiced medicine, but has referred its examinees to their family physicians for treatment, which would represent fees amounting to between five and ten millions of dollars. Plans are nearly completed for turning over as a free gift the common stock of the Institute to several leading universities, so that ultimately the control of the Institute will be in the hands of the trustees of these universities.

NEWS ITEMS.

WORCESTER NORTH DISTRICT MEDICAL SOCIETY.—By invitation, the first quarterly meeting was held at the Henry Heywood Memorial Hospital, Gardner, July 25, at 4 P. M. The speakers were: Dr. Richard H. Miller of Boston, "Errors in Diagnoses;" ten-minute papers, Dr. J. G. Henry of Winchendon, "Problems of a Country Hospital," and Dr. T. R. Donovan of Fitchburg, "Intraspinal Pressure." After luncheon there was a tour of the hospital.

DR. FRANCIS PIERCE SILVA, a well-known physician of Charlestown, died suddenly of heart disease and the effect of the excessive heat in the Haymarket Square subway station, July 13, at the age of 55. Dr. Silva was a graduate of Harvard Medical School in the class of 1893. He was a fellow of the Massachusetts Medical Society, a member of the Charlestown Medical Society and of the Massachusetts Catholic Order of Foresters and the Ancient Order of United Workmen. He is survived by his widow and a daughter.

JOSEPH BENEDICT LYONS, M.D., a fellow of the Massachusetts Medical Society, died at his home in Charlestown, July 18, at the age of 51. He was born in Charlestown on November 4, 1870, and was graduated from the Harvard Grammar School in 1885 and from the English High School in 1888. In 1894 he received the degree of M.D. from the Harvard Medical School. For two years he was house surgeon at the Carney Hospital and then started practice in Charlestown. For many years he was presi-

dent of St. Vincent de Paul Society of St. Mary's Church and was also a member of the Knights of Columbus, Guild of St. Luke, Catholic Alumni Sodality, Charlestown Medical Society, Boston School Physicians' Association, Carney Hospital Alumni Association, Boston City Club, Harvard Alumni Association and the Harvard Club of Boston, and was examining physician of the Boston Consumptives' Hospital. Dr. Lyons served as overseer of the public welfare under Mayor Peters, but resigned on account of ill health. He is survived by his wife and seven children.

DR. CHARLES I. GRANSTEIN SENTENCED.—On July 15 Dr. Charles I. Granstein of Brockton was sentenced to serve a term of from five to seven years in State Prison. About a year ago the Board of Registration in Medicine revoked the registration of Dr. Granstein, the charge preferred being "criminal assault and the performing of a criminal abortion." The court sentence was the result of conviction on the charge of criminal assault. The charge of performing a criminal abortion was placed on file.

APPOINTMENT OF DR. WILLIAM C. WOODWARD.—Dr. Woodward has been appointed executive secretary of the Bureau of Legal Medicine and Legislation, the body which will be under the control of the Board of Trustees of the American Medical Association. The functions of this bureau are set forth as follows: (1) To keep in touch with federal and state legislation relating to medicine and public health; (2) promptly and intelligently to advise interested state associations and component societies concerning medical legislation and, so far as practicable, to co-operate with them in such proper action as they may take; (3) to study the circumstances under which threatened actions for malpractice arise, with a view to devising methods, if possible, of reducing the frequency of such actions; of rendering defence—or compromise, if that be indicated—more equitable and effective; and of procuring relief and redress in actions inaugurated and carried on without probable cause; (4) to study and advise generally with respect to legal and legislative matters of concern to the science of medicine and to the medical profession.

CONGRESS OF HYGIENE IN 1923.—A Congress of Hygiene will be held in Strassburg, Alsace-Lorraine, France, in the spring of 1923. The congress is being promoted by some of the best people in France, and is being organized directly by Dr. Borrel, professor of hygiene at the University of Strassburg and director of the institute there. Dr. Borrel will be pleased to receive information concerning exhibits, either commercial or otherwise, from physicians, dealers in medical and health supplies, associations and institutions, and other agencies. Those

wishing to exhibit at the congress may communicate directly with Dr. Borrel or through the National Tuberculosis Association.

A DEMONSTRATION clinical meeting was held at the Beverly Hospital, Tuesday, June 18, at 4 P. M. The following interesting cases were shown and discussed:

Epithelioma of lip, scirrhous carcinoma of left breast, carcinoma of breast, carcinoma of right breast, question of cholelithiasis, pyelitis, ovarian cyst with twisted pedicle, ruptured appendix with abscess, cholelithiasis, pregnancy, also chronic appendicitis, fractured pelvis, ruptured bladder, contusion of abdominal wall, epiphyseal separation of symphysis pubis, emphysema of right chest.

DR. CAROLINE ELIZA HASTINGS died July 10, 1922, at the Massachusetts Homeopathic Hospital in her eighty-second year. One of the pioneers among women in her chosen profession, Dr. Hastings had become one of the best known women physicians in Greater Boston. For many years she had lived in retirement in Sharon.

She was born in Barre and received her early education in the public schools of that town, after which she entered Mt. Holyoke Seminary. She received her medical training at the New England Female Medical College, where she was graduated in 1868.

She was for seven years a professor in the Boston University School of Medicine. She had also delivered many lectures on medical subjects.

In addition to practising medicine she had been active in various community interests and served as a member of the Boston School Committee for several years. She was a woman of strong convictions and was ready at all times to defend them, especially so as a member of the textbook committee of the school board. She was an advocate of greater cleanliness in the care of the school buildings and was one of the earliest to urge that luncheons be provided for high school pupils.

She was active in the administration of the affairs of the Talitha Cumi Home, which is now conducted at Forest Hills, and to the interests of which she long had devoted herself.

WORCESTER DISTRICT MEDICAL SOCIETY.—Announcement has been made of the engagement of Dr. Charles B. Stevens and Mrs. Elena Searle Farnsworth, both of Worcester. The wedding will take place July 31, 1922. Dr. Stevens is one of the leading physicians of Worcester and Chief of the Staff at Belmont Hospital.

DR. JOHN C. BERRY is recovering from a fracture of the lower third of the right fibula.

DR. CHARLES A. SPARROW has been elected clerk and treasurer of the Medical Milk Com-

mission of Worcester, in place of Dr. Ray W. Greene, resigned. The commission has secured a moving picture film entitled "A Mother by Proxy," which is being shown in the moving picture theatres of the city as a part of their educational propaganda for "certified milk."

Miscellany.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

JUNE THE HEALTHIEST MONTH THIS YEAR, DESPITE DAMPNESS AND HEAT.

There was a big drop in the number of new patients admitted during the month of June, a drop which had been expected in May, but which did not occur at that time and which makes June the lightest month of the year.

The decrease was principally in the respiratory diseases, there being only 26 new cases of pneumonia, 30 of bronchitis and 40 of other respiratory diseases.

The diseases of the digestive system, which usually increase with the summer months, reversed their custom this year and dropped to fewer than in May, only 89 new cases being admitted.

Communicable Diseases of Childhood.—There were 126 new cases of measles, fewer than those of last month, but an increase over those of last June. There was also a slight increase in chicken-pox and mumps.

Cancer and Diseases of the Heart.—Cancer and diseases of the heart kept up their recent record, new cases of both showing slight increases over those of last month and last year.

Visits.—Despite the fewer new cases, the work was heavier than that in June a year ago, because of the number of cases carried over from last month. There were 25,026 visits made—2281 more than in June, 1921.

Baby and Child Health Follow-Up.—There was a good increase in the well-baby visits, and the follow-up work, for the Child Health Clinic was unusually active.

RED CROSS CEASES WORK IN EUROPE.

THE relief operations of the American Red Cross in Europe were officially closed June 30. Thus closes what has been perhaps the most magnificent demonstration of humanitarian effort ever witnessed. Especially in the field of child welfare have American objectives and American methods served the world. The activities involved have given our own workers a broader outlook and better organization. The whole story is one of real achievement.—*The Nation's Health.*

STATE PUBLICITY DIRECTOR EMPLOYED.

Mr. JOHN RITCHIE has been employed as part-time publicity director for the Massachusetts Tuberculosis League. In addition to his many other activities in public life Mr. Ritchie was for years Health Commissioner of Boston and later editor of the *American Journal of Public Health*. For the past year Mr. Ritchie has been employed as part-time publicity director for the Boston Tuberculosis Association, which position he continues to hold. Mr. Ritchie will be available to any local association in the state for advice regarding its publicity work.

SUMMER CAMPS.

THE BOSTON PREVENTORIUM is now operating with twenty children; Malden has held a carnation sale which netted them \$1500 for their summer health camp; and the Hampden County Association is planning to handle 200 children at its Springfield camp this summer.

THE BLIND CHILD.

THE National Committee for the Prevention of Blindness has published a summary of state laws and rulings relating to the prevention of blindness due to babies' sore eyes.

Forty-four states require that babies' sore eyes must be reported. The only states which have made no legal requirement, relating to the reporting of babies' sore eyes, are Arizona, Nevada, Texas, and Wyoming. Physicians and midwives, in twenty-four states, are required to use prophylactic "drops" in the eyes of infants at birth. In two states, only physicians are required to follow this procedure. Two states require midwives and attendants to apply the "drops." Twenty-eight states furnish free prophylactic outfits, and educational literature relating to ophthalmia neonatorum is distributed by thirty-five state health departments.

There is a growing demand for teachers for sight-saving classes. To meet this demand a course for such teachers is being given at Columbia University under the direction of Robert B. Irwin of Cleveland. Miss Gertrude Thompson, formerly teacher of the sight-saving class of Worcester, Mass., will conduct some of the exercises.

INFESTED IMMIGRANTS.

BETWEEN April and August, 1921, 136,307 immigrants and travellers were examined at the Port of New York. There were 1,410 persons found to be infested with body lice. All were deloused and their luggage sterilized before being permitted to leave the supervision of the health department.

FINANCIAL VALUE OF HEALTH WORK.

THE New York City Health Department claims that by its many activities there is secured a saving of \$100,000,000 per year or a profit of 2,000 per cent. on the money appropriated for this department.

THE OMISSION OF OPIUM IN TREATING TUBERCULOSIS.

For three years no narcotic drug has been administered to patients in the Chicago Municipal Tuberculosis Sanitarium. More than a thousand patients are treated each year in this institution. It is claimed that the symptoms formerly treated by the use of narcotics can be treated equally well or perhaps better "by non-medicinal therapeutics, such as hot packs, hot baths, massage, fixation, adhesive plasters, dietetics, psychotherapy, heliotherapy, etc."

Correspondence.

ATTITUDE OF A. M. A. TOWARD THE RED CROSS ENDORSED.

Mr. Editor:

At a meeting of the Franklin District Medical Society held in Greenfield, July 11, it was voted to endorse the stand taken by the American Medical Association in its attitude toward the Red Cross, and also to endorse the article by Dr. Curtis in the JOURNAL for June 29, 1922.

CHAS. MOLINE,
Secretary Franklin District.

OLD NUMBERS OF THE ARCHIVES OF INTERNAL MEDICINE.

Mr. Editor:

I know of an institution which would appreciate old numbers of the *Archives of Internal Medicine*. All of my own I have given to the Harvard Medical School for use as duplicates, and I now learn that there has been a great demand for these by other institutions throughout the country. In seeking for past volumes of this journal, to my horror I learned from one of my friends that he had thrown his old numbers into the waste basket! This prompts me to ask anyone who chances to have old numbers of the *Archives* which he is not using, if he would be willing to part with them for an institution which would utilize them to advantage, and also to call to the attention of physicians in general the desirability of giving all old medical books and journals to medical libraries. Dr. Farlow for a long time has sought these for the Boston Medical Library, and at the Harvard Medical School, too, these would be much appreciated. These old volumes, if not directly utilizable by the library, are exchanged with the greatest possible advantage for other periodicals and books.

I hope, therefore, that any of your readers who chance to have old medical books or other matters of medical interest will not forget the Library of the Harvard Medical School as well as the Boston Medical Library.

Very truly yours,

ELLIOTT P. JOSLIN,
Chairman Committee on Library,
Harvard Medical School.

THE AMERICAN MEDICAL ASSOCIATION OF VIENNA.

June 30, 1922.

Mr. Editor:

The American Medical Association of Vienna wishes to have you announce through the columns of your journal, the restoration of friendly understandings between their organization and the teaching-body of the University of Vienna.

A Special Committee, elected by the Association, after a thorough investigation of the charges of discrimination against Americans, which were reported by members of our Association and published in our recent memorandum to your Journal, find that the men who made the accusations of discrimination were either unable or unwilling to substantiate these charges under oath. Further, the courses in question were not so called book courses and consequently were not under the control of the A. M. A. of Vienna.

It is the sentiment of this Association, that the men of the teaching body of the University of Vienna have suffered by this unjust criticism.

We further wish to state, that through the efforts of our Special Committee, working with a like Committee from the teaching-body, sufficient numbers of book courses in English in all branches may be had at prices of from \$3.00 to \$5.00 per hour for the group, taking such courses.

We are very glad to announce this return of friendly relations between the teaching body and our Association and hope that this communication will be given the same publicity as was given our former memorandum.

JOHN J. GELZ,
B. KAUFMAN,
WM. WILSON.

DIVISION OF MENTAL HYGIENE.

July 15, 1922.

Mr. Editor:

I note on page 36 of our July 6, 1922, issue, over the signature of James S. Stone, Secretary of the Committee on State and National Legislation, that the said Committee reports that "The plan to establish a Division of Mental Hygiene within the Department (of Mental Disease) has been put off."

This is not correct. A law was passed and signed by Governor Cox and I have the quill with which he signed it, which establishes a Division of Mental Hygiene within the Department of Mental Disease, with a Director whose duties are clearly outlined. It is a most progressive measure and is going to be far reaching in the carrying out of a programme for prevention of mental breakdowns.

This Committee also reports: "The plan to have those indicted for crime of a capital nature or indicted more than once for crime, examined by the Department of Mental Disease to determine their mental condition, was defeated."

This is also not correct. For I also have the quill which signed the above bill on May 20, 1921—and it has been a law for a year, and a most successful law. Wickersham of New York is quoted as saying, "This is one of the most progressive laws passed by any State in years." This year an attempt was made to perfect the reporting by the clerks of the courts of the cases covered by this law, but it was defeated by three votes, as the result of John P. Manning, Clerk of the Superior Court, Suffolk County, circularizing the Legislature at the last moment, objecting to the Probation Officers being directed to report the records of the men to the clerks of the courts. So the law stands as it was originally passed and the duty of reporting lies with the Clerks.

Very truly yours,

L. VERNON BRIGGS, M.D.

P. 8.—I enclose a copy of the law on criminals. I am sorry I have not a printed copy of the law establishing a Division of Mental Hygiene, but I will obtain one if you wish it.

[CHAP. 415]

AN ACT PROVIDING FOR AN INVESTIGATION BY THE DEPARTMENT OF MENTAL DISEASES AS TO THE MENTAL CONDITION OF CERTAIN PERSONS HELD FOR TRIAL.

Be it enacted, etc., as follows:

Chapter one hundred and twenty-three of the General Laws is hereby amended by inserting after section one hundred the following new section:—*Section 100A.* Whenever a person is indicted by a grand jury for a capital offense or whenever a person, who is known to have been indicted for any other offense more than once or to have been previously convicted of a felony, is indicted by a grand jury or bound over for trial in the superior court, the clerk of the court in which the indictment is returned, or the clerk of the district court or the trial justice, as the case may be, shall give notice to the department of mental diseases, and the department shall cause such person to be examined with a view to determine his mental condition and the existence of any mental disease or defect which would affect his criminal responsibility. The department shall file a report of its investigation with the clerk of the court in which the trial is to be held, and the report shall be accessible to the court, the district attorney and to the attorney for the accused, and shall be admissible as evidence of the mental condition of the accused. [Approved May 29, 1921.]

PROMOTIONS AND APPOINTMENTS

The Board of Scientific Directors of the Rockefeller Institute for Medical Research announces the following promotions and appointments:

Dr. Wade H. Brown, hitherto an Associate Member in Pathology and Bacteriology, has been made a member.

Dr. Homer F. Swift, hitherto an Associate Member in the Department of the Hospital, has been made a Member.

Dr. Carl A. L. Binger, hitherto an Assistant in the Department of the Hospital, has been made an Associate.

Dr. Albert H. Ebeling, hitherto an Assistant in Experimental Surgery, has been made an Associate.

Dr. Laura Florence, hitherto an Assistant in the Department of Animal Pathology, has been made an Associate.

Dr. Albert B. Hastings, hitherto an Assistant in the Department of the Hospital, has been made an Associate.

Dr. Philip D. McMaster, hitherto an Assistant in Pathology and Bacteriology, has been made an Associate.

Dr. Louis A. Mikeska, hitherto an Assistant in Chemistry, has been made an Associate.

Dr. Ida P. Rolf, hitherto an Assistant in Chemistry, has been made an Associate.

Mr. Fred A. Taylor, hitherto an Assistant in Chemistry, has been made an Associate.

Dr. Hugh J. Morgan, in the Department of the Hospital, has been appointed Resident Physician at the Hospital.

Dr. David I. Hitchcock, hitherto a Fellow in General Physiology, has been made an Assistant.

Mr. James M. Neill, hitherto a fellow in the Department of the Hospital, has been made an Assistant.

Mr. Henry S. Simms, hitherto a Fellow in chemistry, has been made an Assistant.

The Following new appointments are announced: Prof. Karl Landsteiner, Member in Pathology and Bacteriology.

Dr. Christen Lundsgaard, Associate in the Department of the Hospital.

Dr. Thomas M. Rivers, Associate in the Department of the Hospital.

Miss Lillian E. Baker, Chemical Assistant in the Division of Experimental Surgery.

Dr. Edmund A. G. Branch, Assistant in the Department of the Hospital.

Dr. George R. Brow, Assistant in Medicine and Assistant Resident in the Hospital.

Dr. Harry W. Duhl, Assistant in Medicine and Assistant Resident in the Hospital.

Dr. Douglas R. Drury, Assistant in Pathology and Bacteriology.

Dr. Geoffrey C. Linder, Assistant in Medicine and Assistant Resident in the Hospital.

Dr. Henry A. Murray, Jr., Assistant in the Department of the Hospital.

Mr. Frederic M. Nicholson, Assistant in Pathology and Bacteriology.

Miss Ida W. Pritchett, Assistant in Pathology and Bacteriology.

Dr. Harold A. Salvesen, Assistant in Medicine and Assistant Resident in the Hospital.

Dr. Harold J. Stewart, Assistant in Medicine and Assistant Resident in the Hospital.

Dr. Chester M. Van Allen, Assistant in Pathology and Bacteriology.

Miss Helena A. M. Tibbetts, Fellow in the Department of Animal Pathology.

Dr. Peyton Rous, Member of Pathology and Bacteriology, has been appointed co-editor of the *Journal of Experimental Medicine*.

Dr. Harold L. Amoss, hitherto an Associate Member in Pathology and Bacteriology, has accepted a position as Associate Professor of Medicine at Johns Hopkins Medical School.

Dr. Lloyd D. Felton, hitherto an Associate in Pathology and Bacteriology, has accepted a position as Assistant Professor in Preventive Medicine and Hygiene at the Harvard Medical School.

Dr. Raymond G. Hussey, hitherto an Associate in Bio-Physics, has accepted a position as Assistant Professor in Pathology in Cornell University Medical College.

Dr. Robert L. Levy, hitherto an Associate in the Department of the Hospital, has accepted a position as Associate in Medicine at the College of Physicians and Surgeons, Columbia University, and Assistant Visiting Physician at the Presbyterian Hospital.

Dr. Edgar Stillman, hitherto an Associate in the Department of the Hospital, has accepted a position as Associate in Medicine at the College of Physicians and Surgeons, Columbia University, and Assistant Visiting Physician at the Presbyterian Hospital.

Dr. Geronwy O. Brown, hitherto an Assistant in Pathology and Bacteriology, has accepted a position as Assistant in the Thorndyke Laboratory, Boston, Mass., and Assistant Resident Physician at the Boston City Hospital.

Subjects and weights.—Competitors will not be required to report for examination at any place, but will be rated on the following subjects, which will have the relative weights indicated:

Subjects.	Weights.
1. Specimen slides (to be filed with application).....	50
2. Education, training, and experience.....	50
Total	100

Applications.—Applicants should at once apply for Form 1372, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass.; New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; Post Office, Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Calif.; Denver, Colo.; Old Customhouse, St. Louis, Mo.; Administration Building, Balboa Heights, Canal Zone; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, excluding the medical certificate, and must be filed with the Civil Service Commission, Washington, D. C., prior to the hour of closing business on August 15, 1922.

GRADUATE NURSE. GRADUATE NURSE (FOLLOW-UP).
Applications will be rated as received until December 30, 1922.

The United States Civil Service Commission announces an open competitive examination for graduate nurse, and graduate nurse (follow-up), for filling vacancies in the United States Veterans Bureau and in the Indian and Public Health Services.

Salary.—*Indian Service*.—The usual entrance salary for this position in the Indian Service is \$840 a year, with laundry of uniform, furnished quarters, heat, and light. Meals are furnished at cost. Appointees whose services are satisfactory may also be allowed the increase granted by Congress of \$20 a month.

Veterans Bureau and Public Health Service.—In the nursing services of the Veterans Bureau and U. S. Public Health Service the rates of pay are as follows, appointments being made to the lower grades and according to assignment and experience disclosed by the examination; the higher grades are usually filled by promotion:

	U. S. Public Health Service.	Veterans Bureau.
Chief nurse	\$1,584 a year	\$1,344 a year
Assistant chief nurse.....	1,200 a year	960 a year
Head nurse	1,020 a year	750 a year
Nurse	960 a year	720 a year

In addition, quarters, subsistence, and laundry are furnished; and, in the Public Health Service only (not in the Veterans Bureau) the congressional bonus of \$20 a month is allowed.

Nurses assigned to patients having tuberculosis or neuro-psychiatric conditions are allowed increased compensation at the rate of \$60 a year.

Follow-up work in district or subdistrict managers' offices, U. S. Veterans Bureau, to be selected from those passing as graduate nurses (Public Health):

Chief nurse, \$2,000 a year.
Head nurse, \$1,500 a year.
Staff nurse, \$1,710 a year.

Nurses having special experience in psychiatry \$1,800 to \$2,400 a year. These employees do not receive quarters, subsistence, laundry, or the congressional bonus.

Citizenship and sex.—All citizens of the United States who meet the requirements, both men and

UNITED STATES CIVIL SERVICE EXAMINATION—MICROSCOPIST.

RECEIPT OF APPLICATIONS TO CLOSE AUGUST 15, 1922.

The United States Civil Service Commission announces an open competitive examination for microscopist. A vacancy in the Public Health Service, for duty at Memphis, Tenn., at \$1,500 a year, and vacancies in positions requiring similar qualifications, at this or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Duties.—The duties of the appointee will consist of the preparation and identification of histological material, microscopic slides, and the general duties of an expert technician in a pathological laboratory.

women, may enter this examination; appointing officers, however, have the legal right to specify the sex desired in requesting certification of eligibles. For the Indian Service women only are desired; for the Veterans Bureau and Public Health Service both men and women are desired.

BOOKS RECEIVED FOR REVIEW.

The JOURNAL acknowledges the receipt of the following books for review:

Les Maladies Parasitaires des Plantes - Infestation-Infection. Par M. Nicolle et J. Magron. Published by Masson & Co, Paris. 199 pages. Price 8 francs.

Applied Chemistry—By Fredus N. Peters. Published by C. V. Mosby Co., St. Louis, Mo. 461 pages. Price \$3.50.

Symptoms of Visceral Disease. 2nd Edition. Francis M. Pottenger. Published by C. V. Mosby Co., St. Louis. 357 pages. Price \$5.50.

Studies from The Rockefeller Institute for Medical Research. Reprints—Vol. xli. Privately printed. 642 pages. Price \$2.

Blood Transfusion. By Geoffrey Keynes. Oxford Medical Publications. 166 pages. Price \$3.

Treatment of Injuries of the Peripheral Spinal Nerves. By Sir Harold J. Stiles and M. F. Forrester-Brown. Oxford Medical Publications. 180 pages. Price \$4.30.

Reports of the St. Andrews Institute for Clinical Research. Vol. 1. Oxford Medical Publications. 208 pages. Price \$3.

Psychoanalysis and the Drama. By Smith Ely Jelliffe and Louise Brink. Published by Nervous and Mental Disease Publishing Co., Washington and New York. 162 pages. Price \$2.

Tuberculosis and the Community. By John B. Hawes, 2nd. Published by Lea & Febiger, Phila. and New York. 168 pages. Price \$1.75.

Clinical Laboratory Technic for Nurses. Revised Edition. Anna L. Gibson. Published by Whitcomb and Barrows, Boston. 214 pages. Price \$2.

X-Ray Dosage in Treatment and Radiography. By William Daniel Witherbee and John Remer. Published by the Macmillan Co., New York. 87 pages. Price \$1.75.

Food, Health and Growth By L. Emmett Holt. Published by the Macmillan Co., New York. 273 pages. Price \$1.50.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

CASES REPORTED WEEK ENDING JULY 15, 1922.

Disease	No. of cases	Disease	No. of cases
Anterior poliomyelitis	5	Scarlet fever	45
Chicken-pox	24	Septic sore throat	1
Diphtheria	103	Syphilis	42
Dog-bite requiring anti-rabic treatment	17	Suppurative conjunctivitis	7
German measles	2	Trachoma	1
Gonorrhea	91	Tuberculosis,	
Malaria	2	pulmonary	128
Measles	349	Tuberculosis,	
Mumps	54	other forms	21
Ophthalmia neonatorum	9	Typhoid	13
Pneumonia, lobar	24	Whooping cough	112

PUBLIC HEALTH LECTURERS FOR THE YEAR 1922.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past three years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Penteado Bill, M.D., Doctor of Public Health, Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist, Instructor in Bacteriology and Pathology, Tufts College Medical School.

Walter E. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital, Specialty: Specific Diagnosis and Treatment of Pneumonia.

William C. Woodward, M.D., Ex-Health Commissioner, City of Boston.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full time School Health Officer.

Secretaries of District Medical Societies writing to ask for these lecturers will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating unnecessary correspondence. Please address communications to the Secretary of the Committee, Annie Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

[Note: The Committee on Public Health feels that this notice may have escaped attention, for few applications have been received. Each lecturer is an authority and would present his subject in an interesting and instructive manner.]

The Boston Medical and Surgical Journal

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Suffolk District Medical Society.

MEETING OF APRIL 26, 1922.

SUBJECT OF THE EVENING: ENDOCRINE THERAPY.

A CRITICAL CONSIDERATION OF ENDOCRINE THERAPY.

By W. B. Cannon, M.D., Boston.

NOEL PATON entitled his little book on the endocrine glands "The Regulators of Metabolism." But these glands have other functions than that; they regulate growth, they determine the development of intelligence; they fix the appearance of the secondary sexual characteristics and the regular sequences in reproduction, and they control the nature and rate of the chemical changes which take place in the body. There is no question of the importance of these glands and of their capacity to cause very profound disturbances in all the above-mentioned processes. It is only fair to ourselves, however, and to a satisfactory development of the knowledge of the functions of these glands, that we recognize the present limitations of our ability to control these "controllers" and see clearly the dangers of using careless methods and of making hasty inferences.

In justification of these strictures it may be said, first of all, that we lack reliable clinical tests of the defective functioning of the endocrine glands. We have a good clinical test for the over-functioning of the thyroid gland,—the increased metabolism. This increase in cases of "hyperthyroidism" is not paralleled by any other pathological state. But we have no similarly trustworthy way of judging the operations of other glands. It is very common to attribute low blood pressure to hypoadrenalism, and to attribute high blood pressure to hyperadrenalism. There is no evidence whatever that the blood pressure is maintained by the secretion of adrenalin. In many different kinds of animals a small amount of adrenalin causes a fall of blood pressure rather than a rise. Furthermore, it has been shown that an amount of adrenalin which is necessary to induce a rise of blood pressure will stop the whole process of digestion. Dr. Aub has shown that after removal of the adrenal glands an animal may have no fall of blood pressure for two or three days. Stuart and Rogoff have removed one adrenal gland and severed the nerves to the other so that there was no secretion, and kept the animals thus operated upon in normal condition, for months. In the face of such evidence, to attribute a low blood pressure to absence of adrenal secretion is wholly unjustified. Similar remarks could be made about such conditions as adiposity or short stature in relation to these glands. These

conditions may be due to a variety of widely different causes. Furthermore, it is necessary to discriminate between what may be an immediate sequence of disturbance in the functioning of an endocrine gland and the results of secondary changes in other glands before we can decide what is the rational course to pursue.

We are largely ignorant of the ways in which agents are effective when they are administered. In literature which is widely distributed at the present time and in medical writings the giving of adrenalin by mouth is commonly advocated. There is clear evidence that relative to the physiological output enormous amounts of adrenalin can be given by mouth with no effect whatever. Either the substance is destroyed in the alimentary tract or it is absorbed so slowly that it has no influence. Recently it has been found that after an animal is deprived of the pancreas, the high blood sugar can be brought down sharply to normal by intravenous injections of an extract of the pancreas, but that the extract has no effect if given by mouth.

There is a danger in the misuse of endocrine products which is shared by all other therapeutic agents. For example, the misuse of adrenalin and pituitary extract in the treatment of shock. In a state of shock there is evidence that the individual is suffering from diminished blood volume, which fails to fill the circulatory system even though the blood vessels are greatly contracted. After the giving of pituitrin or adrenalin arterial pressure may be increased, but the circulation has not been improved in the essentially important capillary area. The action of these drugs is to constrict the arterioles. This dams up the blood in the arteries and, if anything, checks the circulation in the capillaries.

Certain fallacies ought to be borne in mind in dealing with these substances. They are frequently given in the belief that there is a deficiency of one gland or another. For example, because pituitrin will cause contraction of the uterus in labor it has been supposed that it is the natural function of the pituitary to stimulate the uterus during labor. That is a fallacy dependent upon the failure to recognize that pituitrin is a drug with a pharmacodynamic action. There is no evidence that pituitrin acts in the body as it does when given as a drug. We are not at all justified in drawing inferences from the therapeutic effect of a drug made from these glands as to their physiological rôle in the body.

A second fallacy is dependent on the use of polyglandular therapy. There is a tendency to believe that all the substances included in the mixture are effective. All the agents may get credit for a single one contained in the mixture. An analysis of a number of cases in which such a compounded preparation had been used with extraordinary effect showed that they could all be reasonably regarded as cases of hypothyroidism and that the thyroid substance in the mix-

ture had wrought its usual changes in such conditions.

Another fallacy lies in the claim that there is a condition of the body known as "hormone hunger," that is, that when a gland is absent or deficient and a mixture of gland substances is given the body will take from the mixture what it needs and will neglect the rest. That is pure theory. It is not commonly true of therapeutic agencies. It is not true of thyroid substances, for example, for thyroid can be given until it produces a very distressing condition. The body does not neglect it, but suffers from it.

I believe as we make progress in our knowledge of endocrine therapy we shall get greater and greater control of the bodily processes. Most of the original progress in endocrinology was made by clinical observers. That fact deserves emphasis. The clinics receive varieties of disturbances that are very difficult to reproduce in the laboratory. What is needed for progress is not this confusing, misleading use of mixtures of all sorts, but a careful use of single agents, rationally chosen, so that when results are obtained they may be attributed to the agent used. My plea is for a critical attitude in the presence of the present wave of enthusiasm for endocrine interpretations of medical disorders and for endocrine treatment of all sorts of complaints. Throughout the history of medicine advance has been made by critical study and not by simple faith. Furthermore, silliness on the part of the credulous has a tendency to repel the more sober-minded, so that persons who are most needed for the development of new knowledge in endocrinology are not encouraged to undertake the task.

THE USE AND ABUSE OF THYROID.*

BY J. H. MEANS, M.D., BOSTON.

Although little enough is known of the function of any of the endocrine glands, I am inclined to believe perhaps that little is greater in the case of the thyroid than in that of any of the others. There are definite syndromes which we associate clinically with over or underactivity of the thyroid which can be closely paralleled artificially through thyroid feeding in the one case or thyroidectomy in the other. Furthermore, in the case of the thyroid a substance has been isolated in pure chemical form, which in many respects behaves as though it were the active principle, or perhaps better one of the active principles of the gland. This substance has been called thyroxin by its discoverer, Kendall.¹

The functions of all the endocrine glands are unquestionably closely interrelated, but the manner of these interrelationships is very imperfectly understood. Many of the hypotheses

*Such original work of the author and his associates as is referred to in this paper has been aided in part by a gift from Dr. William Norton Bullard.

that have been elaborated concerning them rest upon a very scanty basis of fact. In general, it may probably be said with truth that all of the endocrine glands are in some way concerned in the two great processes of metabolism and growth, both of these terms being taken in their broadest sense.

The most conspicuous function of the thyroid, in so far as we know its functions, is its regulation of the rate of oxidation within the body, or of the rate of energy transformation in living cells. Other glands than the thyroid are concerned in this regulation, notably the adrenal, and to a less extent the pituitary, but less strikingly so than is the thyroid. Furthermore, the thyroid probably has other functions than the regulation of the thermogenesis, as shown, for example, by the work of Hunt,² who found that thyroid feeding decreased the susceptibility of animals to certain poisons.

In spite of these other functions, however, it is chiefly in its rôle of governor to the human engine, or, if you will, damper to the human furnace,* that the thyroid presents itself to the attention of the clinician. Overactivity of the thyroid is characteristically manifested by an increased rate of combustion within the body; underfunction by a decrease. A knowledge of this fundamental principle of thyroid activity enables us to understand the alterations of thyroid function seen clinically. The signs and symptoms of toxic goitre, for example, the flushed skin, the increased sweating, and the sensation of warmth, are the direct result of an increased heat elimination, while the increased circulation rate, the loss of body weight, and the compensatory appetite increase may be regarded as the direct result of increased heat production. Similarly, the cardinal manifestations of myxedema,—the lack of sweating, the chilliness, the sluggish circulation and the gain in weight,—may be explained on the basis of decreased heat production and elimination.

The purpose of the present paper is to discuss briefly the indications and contraindications for thyroid therapy. We cannot use a drug intelligently unless we know its pharmacologic action, nor can we intelligently treat disease unless we have some understanding of the functional and structural pathology involved. In the case of thyroid therapy we are using as a drug a normal constituent of the body. We know something of the function of the gland as it exists in the body and of its action when given as a drug. We should, therefore, be in a good position to see when thyroid should be used therapeutically as well as when it should not.

Let us consider for a moment the effect of thyroid when given to a normal man. In Figure 1 is shown an experiment performed by my associates, Dr. W. G. Lennox and Miss H. W. Burgess. The ingestion of dried thyroid gland

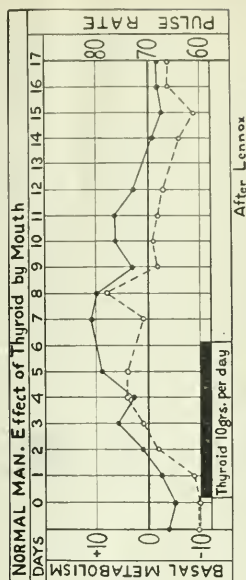


FIG. 1. Effect of thyroid on a normal man. The heavy black line denotes basal metabolism; the interrupted line, pulse.

for six days caused a gradual rise in the rate of metabolism and pulse and produced certain definite symptoms, such as palpitation. The chief point which I should like to emphasize is the relatively slow action of thyroid. The maximum rise in pulse and metabolism did not occur until the seventh day and the effect took some nine days more to wear off. This effect of thyroid on metabolism is similar in character to that of adrenalin. I hope that Dr. Aub will later tell us about the adrenal effect. The adrenal seems to be a rapid, the thyroid a slow action.

In contrast with the thyroid feeding curve are those obtained by Marine and Leuhart,³ after complete thyroidectomy in rabbits. As we should expect, they show essentially the diametric opposite effect. A drop in metabolism of a similar order of magnitude has been observed by Aub and myself in a woman in whom Dr. Brewster did an extensive thyroidectomy for thyroiditis.⁴

These facts emphasize what is news to no one, that thyroid administration is indicated in hypothyroidism. The rapid relief of the symptoms of myxedema by the giving of thyroid gland is one of the great advances of modern medicine. But just because we have this highly potent agent at hand to cure certain pathologic states, just so much the more should we be on our mettle to diagnosticate them. Frank myxedema and cretinism should offer no difficulties, and yet I think many of us have seen typical cases of the former which had been regarded as nephritis for years. It is the atypical case of

*Neither of these analogies is strictly correct, but they have value suggestively.

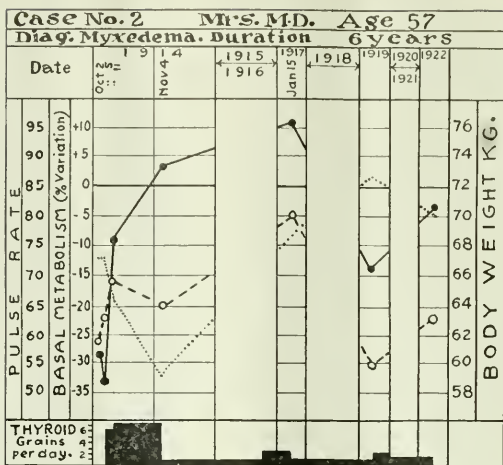


FIG. 2. Effect of thyroid in a case of myxedema. The heavy black line, in this and in Figure 3, denotes basal metabolism, the interrupted line pulse, and the dotted line body weight. The observations of Oct. 2 and 5, 1914, were before thyroid, the subsequent ones during the administration of thyroid. It will be seen that for the most part the dosage was so regulated that the metabolism stayed essentially within normal limits.

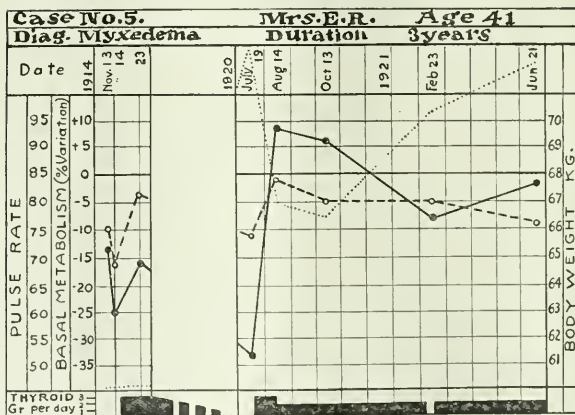


FIG. 3. Effect of thyroid in another case of myxedema. The observations of Nov. 13 and 14, 1914, were before thyroid, that of Nov. 23 after. The patient left the hospital in the middle of December, 1914, and was not seen again until July 14, 1920. She had taken thyroid for six months after leaving the hospital, and then very irregularly for a few months more. She had had none at all for a year previous to July 14, 1920. Her symptoms and signs of myxedema were more pronounced than ever. The second course of thyroid promptly brought her to a normal state and she has remained so ever since. One observation has been received since the above drawing was made. On Jan. 5, 1922, the metabolism was 5 per cent., the pulse 89, and the weight 73 kg. The dose of thyroid has remained the same.

hypothyroidism that will tax our diagnostic acumen. At present the clinical use of calorimetry offers a valuable aid in the recognition of these borderline cases.^{5,6} In the presence of symptoms suggestive though not typical of

myxedema, the finding of a subnormal metabolic rate justifies the administration of thyroid gland, and in both the typical and atypical cases of hypothyroidism the further observation of the basal metabolism will provide a guide to the

proper dose of the drug for the given individual. As is shown by the charts of some of our myxedema patients (Figures 3 and 4), the aim should be to give sufficient thyroid to raise the metabolism to a normal level and keep it there, but not to give enough to produce hyperthyroidism.

In certain types of goitre there may be an indication for the administration of thyroid or thyroxin. Certainly not in exophthalmic goitre nor in adenoma with hyperthyroidism, for in these the body is already suffering from an excess of thyroid secretion, but in certain diffuse colloid goitres, as pointed out by Plummer,⁷ there may be an actual deficiency of thyroid secretion available for the tissues. The goitre under such circumstances is the result, not the cause, of the hypothyroidism. In cases of this type, he has found, the administration of thyroxin will diminish the size of the gland and fails to produce the symptoms which thyroxin would in a normal person. These patients have basal metabolic rates of 8 per cent. to 15 per cent. below the average normal.

The next problem which presents itself is whether thyroid therapy is ever indicated in conditions which are not clearly those of hypothyroidism. In his textbook of pharmacology and therapeutics Dr. H. C. Wood, Jr.,⁸ says: "The diseases in which the thyroid body has been given include nearly all the chronic and many of the acute troubles known to humanity; in some of them it has seemed of benefit. In most it has proved useless." We cannot even enumerate them here. The list includes such varied conditions as dysmenorrhoea, psoriasis, heart block and the non-union of fractures. In none of them has the result of thyroid therapy been so obviously good as to make the adoption of that form of therapy general.

By far the most important problem from the point of view of the practitioner is whether it is legitimate to use thyroid in the treatment of obesity. I have expressed the view in the past that it is not legitimate. My reasons were that, having found that in simple obesity there was no alteration of basal metabolism, I believed that no element of hypothyroidism existed, and that, therefore, the effect of giving thyroid would be to produce hyperthyroidism. It might be objected to this argument that thyroid does reduce weight and that a mild grade of hyperthyroidism if not long continued does no great harm. Perhaps this may be true in certain instances, but I have repeatedly seen patients, particularly those who are no longer young, in whom the use of thyroid has produced very definite circulatory symptoms, palpitation, precordial pain and sometimes even attacks suggesting angina pectoris, symptoms which to my mind cannot be regarded lightly. Furthermore, it is a matter of common experience that the weight-reducing power of thyroid in obesity is uncertain and oftentimes of short duration. A part is due

merely to loss of water, for one effect of thyroid is the production of diureses.

I still feel that in the routine treatment of obesity thyroid is undesirable. I do not wish to give the impression that I am opposed to all empiric therapy. Many of the advances in medicine have been made through empiricism, but if one uses thyroid empirically he should do so with the greatest care. It is a very different matter to give thyroid to a patient under daily observation in a hospital, where pulse, weight, metabolism and symptomatology can be constantly observed, to ordering it for a patient not to be seen again for several weeks. The former may be legitimate where the latter is not.

For example, in the treatment of obesity I am permitted through the kindness of Dr. Edward H. Mason to refer to two cases treated by him in the Royal Victoria Hospital, Montreal. These patients, both women, were treated by a combination of extremely low diet, under 500 calories per day, and thyroid, the dose varying between three and fourteen grains per day. This programme was entirely legitimate under the circumstances, both patients being under close observation in a metabolism ward throughout their treatment, and the results obtained justified the methods used. The treatment lasted some fifteen weeks, during which time one patient lost 29, the other 36 kg. The basal metabolism, observed frequently, in one patient never went above +8.6 per cent., but in the other once rose to +21 per cent. The latter was, therefore, for a brief interval, rendered thyrotoxic, but it apparently did no harm.

The fact that Dr. Mason coupled his thyroid therapy with a diet just short of starvation is to my mind one of the most important features of his work. Benedict⁹ has shown that the effect of prolonged undernutrition is to reduce the rate of metabolism, that of giving thyroid is to raise it. It may well be that patients on very low diets tolerate thyroid better than those on more liberal ones. It is not at all impossible that the lowered metabolism in starvation is a compensatory mechanism on the part of nature to reduce tissue loss to a minimum. If one did not wish to save tissue, but to burn it, one might accomplish it by starving and giving thyroid at the same time. One wonders, however, what would have happened in Dr. Mason's cases with the dietary restriction alone. In 1915 I reported observations on an obese woman who was reduced 10 kg. in 36 days by a system of intermittent fasting.¹⁰ She lost weight, therefore, at about the same rate but without the use of thyroid.

Another important phase of thyroid therapy is the use of this drug by the laity. The profession, of course, is deluged with propaganda from unprincipled drug promoters telling of the nearly universal helpfulness of organotherapy. Let us hope that the majority of physicians will be duly skeptical. It would seem

though, that enough are credulous to make the advertising profitable. It is, however, the direct self-dosing by the laity that is most fraught with danger. In certain instances the public is urged to take thyroid as a general prophylactic agent and cure-all. The use of thyroid without a physician's advice, in order to reduce weight, is quite common.

For example, a graduate nurse has kindly collected certain data for me regarding the use of thyroid by the pupils in a girls' boarding school in Massachusetts. The local druggist sold it over the counter to anyone wishing it. Such self-dosing was quite contrary to school rules, but was difficult to stop. The craze among the girls was to be thin and to have lathsome figures; the thyroid, it was hoped, would secure the fulfillment of this ambition. The histories of two girls were obtained in detail. Miss A., 17 years old, took ten grains a day for three weeks, when she began to feel weak, to have increased sweating, nausea and more or less headache. She took the thyroid because a kind relative told her it would make her thin. It apparently did so temporarily, for she lost twenty pounds, but it made her sick also. Miss B. took thyroid upon the advice of Miss A. She took ten grains a day for two weeks, then about eight grains a day for another week, after that took it irregularly, sometimes five grains, sometimes ten or twelve, extending over a period of five or six weeks. She lost seventeen pounds and also developed nausea, vomiting, headache, anorexia, loss of appetite, extreme nervousness and insomnia. Her pulse rose to 110. After the drug had been stopped the nervous condition persisted for several months, gradually clearing up.

CONCLUSIONS.

In conclusion it seems fair to say:

1.—That in thyroid we have a highly active drug. The conspicuous feature of its action is the increasing of the rate of combustion within the body and the production of the symptoms associated therewith.

2.—That certain clinical conditions exist in which a low metabolic rate is undoubtedly due to underactivity of the thyroid. That in such the administration of thyroid relieves all symptoms. That certain types of non-toxic goitre may be included in this group.

3.—That in conditions other than hypothyroidism no conclusive indications for the use of thyroid have yet been found.

4.—In normal persons the ingestion of thyroid produces unpleasant if not harmful symptoms. In obese persons it does the same. In simple obesity there probably is no element of hypothyroidism. The use of thyroid in the routine care of obesity would therefore be unwarranted. An exception may be made when thyroid therapy is coupled with partial starvation.

5.—Whenever thyroid is used in conditions other than hypothyroidism—in obesity, for example, or empirically in other conditions—it should be used with the greatest caution. The physician should have a full understanding of its action and of the harm it may do, and have his patient under careful observation, so that the drug may be stopped at once if ill effects arise.

6.—Self-dosing with thyroid by the laity is highly undesirable. The profession should do its utmost to discourage this practice.

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ADRENAL THERAPY.

By C. H. LAWRENCE, M.D., BOSTON.

The scope of this paper allows only brief mention of certain uses of adrenal gland extract. More common uses to which adrenalin is put depend, not upon its general effect on the physiology, but upon its local action on certain structures. Its use in surgery and laryngology is well understood and need not be discussed here. Its effect in relieving bronchial spasm in asthma and the skin manifestations of protein sensitization has been clearly demonstrated.

When, however, attention is turned to the effect of adrenal secretion upon the body in general, and its usefulness as a therapeutic agent, the greatest obscurity and conflict of opinion is encountered. Clinical medical literature is crowded with articles claiming that a variety of conditions, from epilepsy to post-infectious debility, are due to malfunction of the adrenals, and can be cured by the administration of adrenalin or adrenal extract plus one or more other glandular derivatives. Laboratory workers reply that they are unable to substantiate these claims by means of animal experimentation, and the clinician replies that he is treating sick human beings, not experimental animals. Add to this situation the propaganda of various manufacturers, whose only purpose is to exploit glandular therapy in general, and the situation becomes nearly hopeless.

The only hope at all lies in the fact that slowly, through research, a little more is becoming known and a little less suspected concerning

the adrenal and other endocrine glands, and that here and there clinicians are doing scientific work upon the subject.

There are, however, certain important points on which clinician and laboratory worker differ. These I wish briefly to call to your attention. The first is the effect of adrenalin on blood pressure. It has been shown by animal experimentation that injection of adrenalin causes a rise in blood pressure. From this fact it has been argued that the secretion of the adrenals was the important factor in maintaining blood pressure in man, and as a corollary, that injections of adrenalin would be successful in combating the hypotension of shock.

In spite of the fact that the rise in pressure following administration of adrenalin is temporary, that it may be followed by a fall to a level lower than that which previously obtained, and that Stewart and Rogoff¹ have shown that the adrenalin output in shock is not essentially changed from normal, adrenalin was and still is used enthusiastically in many conditions in which hypotension is one of the abnormal findings. At present its use in such conditions is diminishing, as experience slowly teaches that the effect obtained is too transitory to materially benefit the patient.

Another point on which laboratory worker and clinician differ is the effect of giving extract of the whole adrenal gland by mouth. This form of treatment has been condemned as useless by the laboratory, since no typical adrenalin effect could be demonstrated on animals following the oral administration of that substance. Some clinicians have felt sure that cases of definite hyposecretion of the adrenals, if not due to tuberculosis of the glands, were benefited by oral administration of whole adrenal substance. Among others, Osborne² has recently reported such a case, and my own experience, though limited, agrees with his. The explanation lies, I believe, in Rogers'³ recent work. From his experiments with extracts of whole adrenal gland given by mouth to animals he concludes that "certain derivatives of the entire adrenal gland produce physiological reactions which differ materially from those of commercial adrenalin." Stewart⁴ says: "The experimental evidence has tended more and more to show that the cortex is the part of the adrenal indispensable for life."

It seems probable, therefore, that adrenal substance administered by mouth is of value in certain types of adrenal insufficiency. It remains to be determined exactly how it produces its beneficial effects and in what conditions it is useful. Its exhibition in every case showing low blood pressure is no more logical or successful than the use of the nitrites in every case of hypertension. The low pressure is in most instances evidence of general malnutrition or tox-

aemia in which the adrenals may share, but which they do not cause.

The great need at present is more careful study of cases of possible adrenal disease. The presence of hypotension and Sergeant's white line⁵ do not justify the use of adrenal therapy.

A careful inquiry into the history in cases of hypoadrenalism will usually bring to light a previous severe infection or abnormal nervous strain. Nervous irritability, insomnia, loss of appetite, constipation or diarrhoea, palpitation, dyspnoea, often attacks of abdominal pain, and, most important of all, lack of muscle strength and easy fatigability—some or all of these symptoms appear in the history of any patient whose adrenal function is insufficient. Physical examination will usually disclose pallor, actual muscular weakness and limited response to physical effort. Microscopic examination of the blood as a rule shows a secondary anaemia of moderate degree, with often a relative increase of the lymphocytes. Chemical examination of the blood, in my experience, shows an abnormally low sugar content. This has been previously reported by Falta,⁶ Eppinger,⁶ Bernstein,⁷ and others, and is, I believe, of considerable diagnostic value. This estimation is available to any physician and should be made in all suspected cases. I also believe, though my experience with it is too limited to be of much value, that cholesterol estimations may prove important.

When a patient's history and physical examination present a picture similar to the one I have sketched, and when the laboratory findings fit into that picture, then, and only then, is adrenal therapy justified in the present state of our ignorance. We may eventually have an easier way of making the diagnosis, but it can come only as the result of painstaking study of patients, checked by research. There must be less use of glandular extracts in obscure cases simply because the picture is obscure and the action of the endocrines is likewise obscure. If it is ever to be anything else, there must be careful observation of cases in their early and curable stage. This cannot be done in hospitals, since patients do not often come to hospitals until the disease has passed that stage. But there can be close co-operation between practitioner and laboratory, which would make the results of research more available for the test of clinical use, and would lead the practicing physician to pay more heed to proven facts and less to inspired theories.

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PARATHYROID DEFICIENCY AND ITS TREATMENT.

BY FRANK H. LAHEY, M.D., BOSTON.

THE parathyroids were first described by Sandström, a Swedish anatomist, in 1880.

They were rediscovered by Gley in 1891, and his conception of their function maintained itself for approximately the succeeding ten years, namely, that it was the function of the parathyroids, by differentiating into thyroid tissue, to take up the duties of the thyroid when that gland was removed. This is now known to be untrue.

Moussu demonstrated in 1897 that complete removal of the parathyroids produced death in convulsions, now known as tetany.

The parathyroid glands vary from four to one in number. Of 64 cases studied by Laignel-Lavastine and Duben,¹ 11 had 4 parathyroids, 18 had 3 parathyroids, 15 had 2 parathyroids, 17 had 1 parathyroid, 3 had no demonstrable parathyroids. It is possible in these last three cases, and also in some of the other groups, that parathyroids were present which could not be demonstrated.

When all are present, two are located at the top of the gland, on the posterior surface, in close relation to the terminal branches of the inferior thyroid arteries, and two are located at the inferior pole of the gland, on the posterior surface, where the branches of the inferior thyroid artery and the recurrent laryngeal nerve are in close relation.

We have demonstrated parathyroid bodies a great many times in thyroid operations and have seen them present in unusual locations. The most constantly located gland has been the one at the entrance of the inferior thyroid artery, on the posterior surface close to the trachea. We have seen glands, corresponding in every way to parathyroid glands, well out toward the outer border of the posterior surface of the thyroid, and well down to the lowest portion of the gland where the inferior thyroid veins and thyroidea ima artery enter the gland; likewise, a presumably parathyroid gland lying directly on the anterior inferior surface of the thyroid near its outer border; and, also, superior parathyroids entirely free from the thyroid gland lying within the bundle of the superior thyroid vessels just before their connection with the superior thyroid pole. Therefore it is obvious that the location and relationship of the parathyroids are by no means constant.

One of the greatest difficulties with the entire parathyroid problem is that these glands are not of sufficient size or distinctiveness to permit one to be certain of their true identity without removing and submitting them to histological examination, and it is doubtless this

fact which has resulted in such a number of contradictory results in the production of tetany in animals, and possibly in the therapeutic effects of parathyroid feeding.

The following characteristics have been noted by us in parathyroids seen in the course of several hundred thyroid operations. They are elliptical, clean-cut, brown bodies varying in size from slightly less than the head of a match up to slightly less than the smallest pea bean. They are soft, their surface is smooth and shiny, often showing the striations of fine blood-vessels beneath their covering; they are movable, elevated, and to be distinguished from lobules of thyroid tissue by the fact that on careful examination they will be found to be entirely separate from the thyroid and bound to it by delicate connective tissue in which are the nourishing vessels. Accessory parathyroids have repeatedly been demonstrated in animals and no doubt may exist at times in man.

The parathyroid bodies have been suspected of playing a part in epilepsy, myotonia, paralysis agitans, eclampsia, the infantile spasmodic, and the tetanic attacks in adults not occurring as a sequence to thyroid operations. The relationship in this group of cases is based almost solely upon the fact that the characteristic features of those diseases are tetanic in form and tetany is known to occur with removal of the parathyroid. Further, that during the tetanic attacks, particularly in spasmodic and adult non-surgical tetany, there is found, as in surgical tetany, a lowered calcium content in the blood. Suspicion as to their relationship results also from the fact that beneficial results have been claimed especially in the two last-mentioned conditions—spasmodic and non-surgical tetany—from calcium treatment which is known to be of value in surgical tetany. As to the proven relationship of the parathyroids in these diseases, there is none. No pathology of the parathyroids has been proven nor has parathyroid feeding proven of value.

Osteomalacia and rickets are bone diseases whose origin has at times been attributed to functional disturbances in the parathyroid glands. The theory of relationship in this group of bone cases has been based upon the proven fact that the improper bone development is the result of calcium deficiency, and since it is known that there is an increased calcium output in the urine and feces, and a diminished amount of calcium in the blood and brain during the tetany which follows the removal of the parathyroids in animals, and since it is known, also, that the administration of calcium to parathyroidectomized humans or animals is beneficial and in most instances controls the tetanic attacks, it is presumed that there is a relationship between these bone dis-

eases and the parathyroids. When, however, it is realized that tetany can be relieved also by acid administration (Wilson) or by infusion of soluble strontium salts (Berkeley and Beebe) as well as by calcium salts, and when it is further realized that the above-mentioned bone diseases are not influenced by the administration of either calcium or parathyroid extract, and that no parathyroid pathology is demonstrable in these conditions, the relationship as in the previous group becomes equally less tangible.

As to the administration of parathyroid extract, in the first group of cases no benefit has been obtained from its use in epilepsy, myotonia, eclampsia, the spasmodic of childhood, or the non-surgical attacks of tetany. Claims have been presented as to its therapeutic value in paralysis agitans, and cases have been cited in which improvement in symptoms in this disease has been accomplished by means of transplantation of parathyroid glands. Regarding the administration of beef parathyroid in this disease, the method has now been used for several years without producing striking and convincing results. Regarding transplantations of parathyroid in paralysis agitans, a very limited number of such transplantations have been favorably reported from foreign clinics, but inasmuch as unsuccessful transplantation of parathyroids in tetanized animals and humans has been almost the universal rule, one must accept these one or two cases only with considerable reservation. Where transplantations for tetany are done close to the onset of the disease (as they usually are), one may rightly suspect that if a cure follows the transplantation, a remaining parathyroid may have resumed its function.

Tetany following surgical parathyroidectomy may therefore be said to be the one constant and tangible state which may be directly attributed to parathyroid deficiency. It may be consistently produced by the removal of the parathyroids and in a constantly characteristic form. Unfortunately from the point of view of proof, however, it apparently is not constantly cured by the administration of parathyroid extract, as is the case in thyroid feeding in myxoedema.

It appears within two to five days following operations on the thyroid gland, one case having been reported four hours post-operative. In the complete and severe form there are convulsions, spasmodic contractures with the hands in the characteristic *aecoucheur's* position, rapid respiration, salivation, and death in coma.

The mild or transitory types are due quite probably to partial parathyroidectomy, the attacks occurring when additional loads are thrown upon parathyroid tissue not sufficiently abundant to meet the unusual demand.

In this recurring and less severe type it is possible to observe the signs of the disease with greater deliberation. The earliest complaints in the three transitory cases which we have seen have been stiffness and tingling in the hands and feet, followed by spasmodic contractures of the hands and feet, with the fingers in the characteristic position of the *aecoucheur's* hands, the fingers flexed at the metacarpophalangeal joint, the hand flexed at the wrist and the thumb on the palm, the arms flexed at the elbow. These attacks have passed off within a few minutes and have been controlled by the administration of calcium lactate and parathyroid extract. The condition is further characterized by Trousseau's sign, contraction particularly of the fingers and thumb on pressure over the large nerves of the arm; Chvostek's sign, a spasm of the face seen on tapping over the trunk of the facial nerve; Erb's sign, an increased irritability of the peripheral nerves to weak galvanic currents. The entire picture of the disease is one of hypersensitiveness of the peripheral and also the central nervous system.

Our own experience with tetany has been limited to three cases, all transitory in character. Two received both calcium lactate and parathyroid extract with prompt relief. One has had no recurrence of the attacks since leaving the hospital, and one has had occasional attacks at rare intervals. The third case was first placed upon parathyroid extract without effect, and later controlled by the administration of calcium lactate.

Two of the cases of tetany occurred out of 342 thyroid operations during the year 1921, and one has occurred this year, 1922, out of 128 to date. None occurred in over 500 thyroid operations previous to 1921. Our explanation of the recent occurrence of tetany in our hands is that we have in recent years felt it necessary to remove more thyroid tissue to accomplish the most complete degree of cure, and have in this way perhaps more often jeopardized the viability of the parathyroids. We regret that in each of our three cases separate medication as in the last was not tried out, submitting the patient first to parathyroid extract and later, if necessary, to some form of calcium administration.

Since there seemed to be a divergence of views regarding the therapeutic value of parathyroid extract, we sent a questionnaire to a number of surgeons as to their success in treating tetany, the type of treatment used, and the results.

Two reported that they had used parathyroid extract alone, successfully controlling the tetany. Of these two, one states that dried beeves' parathyroid controlled the attacks promptly, but that later the patient was given calcium in small doses which sufficed to control

the manifestations. The other reports that calcium lactate had no effect, but that parathyroid extract by mouth controlled the symptoms at once. This patient died later, however, in epileptic convulsions.

One reports definitely that his experience with parathyroid extract has been unsatisfactory.

One clinic reports that they have not used it for a year, employing calcium instead.

One reports giving as high as 15 grains of parathyroid extract a day. He does not think it was of value, but used calcium lactate with it. Signs disappeared in two weeks. In his opinion recovery was due to spontaneous return of function.

One reports parathyroid used without effect, but comments that the preparation might have been old.

One reports that in his experience ordinary parathyroid extract tablets have been entirely useless, and states that repeated use of the microscope has satisfied him that the material may be of another character and seldom is really parathyroid.

Seven report very satisfactory results with calcium in the form of calcium lactate; one of the seven states that he at times employs calcium bromide, and one that he employs calcium chloride 10 per cent. sol. 5 c.c. intravenously, taking care that it is introduced slowly, as painful indurations follow its diffusion into the tissues.

One reports that all cases are given calcium post-operatively in view of the possibility that they may show tetany (calcium chloride elix. 2 drachms T. i. d.).

Two, excluding our own experience, employed parathyroid extract combined with calcium.

From the foregoing it seems quite probable that at least the average parathyroid extract is of doubtful value, and that calcium in the form of lactate or chloride is more dependable. It is further probable that particularly during the attacks when prompt relief is sought, the administration of calcium intravenously results in more prompt effect than when given by mouth, where absorption is slow. It seems probable, also, that when given by mouth, in fairly large doses, 15 to 20 grams of the lactate, provided it does not produce nausea, should be given.

It is impossible from the data which we have at hand to estimate other than roughly the incidence of tetany in thyroid operations. We have totaled the number of cases of tetany and the number of thyroids operated where this data was given in the replies, with the following result:

In approximately 5600 operated thyroid cases, tetany appeared in 27 cases, of which number three were fatal within a short time

and 24 were apparently transitory in character. Except in our own three cases, which are progressing favorably, we have no facts as to the eventual outcome in the transitory cases.

There is much experimental evidence upon which to base calcium feeding in this condition. Wilson, Stearns, and Thurlow² demonstrated in tetanized dogs that an alkalinity of the blood develops after parathyroidectomy, and that the same lowering of the alkalinity may be accomplished with calcium as after the injection of acid.

The electric irritability which is increased in tetany when the calcium content is low (Erb's sign, increased irritability of peripheral nerves to galvanism) has been shown by Rosenstern³ to be diminished when large quantities of calcium are administered by mouth.

Peripheral Irritability.—MacCallum has shown that, if the extremity of an animal be perfused with blood from a parathyroidectomized animal or blood from which the calcium has been removed, the electric irritability is increased, and if the limb is again perfused with normal blood the hypersensitiveness in this part disappears.

MacCallum has proved that the effect of the poison is upon the nerves and not the muscles by cutting the innervation of a muscle away and not obtaining the tetanic contraction with tetany which is obtained when the innervation is complete.

In addition to the above, tetany has been brought about both in children and in adults by the administration of soda bicarbonate. It has also been produced by voluntary prolonged hyperpnoea, probably as a result of the disturbance of the acid-base equilibrium in the body, producing an increased alkalinity of the blood and urine, a diminution in the plasma bicarbonate, and a lower carbon dioxide tension.

As has previously been stated, MacCallum has demonstrated in tetanized animals an increased output of calcium in the urine and the feces and a lowered amount in the blood and brain.

CONCLUSIONS.

Tetany undoubtedly follows complete removal of all of the parathyroids.

It occurs in two forms, mild and transitory, or severe and fatal.

Parathyroid pathology has not been demonstrated in the other diseases characterized by calcium deficiencies or tetanic seizures.

Surgical tetany, therefore, is the only disease which may now be attributed to parathyroid deficiency.

Clinically and chemically it simulates other diseases which are apparently the result of disturbances in the acid-base balance.

With the appearance of its symptoms there is a definite increase in alkaline balance, a

decrease in the acid balance; and a disappearance of symptoms when this balance is restored by the administration of calcium in some form.

Calcium, therefore, by mouth in the form of calcium lactate and by vein in the form of calcium chloride or calcium lactate, is the most effective form of treatment. In transitory cases it will undoubtedly tide patients over the attacks. In the severe form it perhaps prolongs life, but death probably eventually results.

It is doubtful if the average commercial parathyroid extract is of value in surgical tetany, and it is quite certain that it is of no value elsewhere.

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PITUITARY GLAND THERAPY.

By W. RICHARD OHLER, M.D., BOSTON.

In presenting a few remarks on the subject of pituitary gland therapy no attempt will be made to review the literature on the subject, nor to set up definite standards or rules of treatment. The whole subject is still none too clearly understood even by those who confess to a rather extensive use of this form of therapy. My purpose is simply to review very briefly the more generally accepted clinical signs of disturbed pituitary function and to suggest what may be expected from glandular therapy.

It is generally accepted that the clinical manifestations of pituitary disorders are produced by over-function (hyperpituitarism) or under-function (hypopituitarism) of the whole gland, and various combinations of over- or under-function of separate lobes of the gland, so-called dyspituitarism. Attempts have been made to group symptoms according to over- or under-function of separate lobes of the gland, but in the light of our present knowledge it seems best to speak only of over-function or under-function of the whole gland. In doing so use has been made of various texts and articles, but particularly of the publications of Cushing and his co-workers.

Briefly the clinical signs are as follows:

I.—Over-function (hyperpituitarism).

1.—Acromegaly and a certain type of gigantism are usually associated with hypertrophy and hyperplasia of the anterior lobe.

A.—Skeletal changes—

a.—If ossification of epiphyseal cartilages incomplete before onset of disease, changes result in a fairly normally proportioned giant.

In this connection it is well to point out that in emaciated the skeletal changes are probably due to pituitary hyperfunction secondary to deficiency of testicular hormone. This apparently establishes a definite relationship between testicular hormone and pituitary action.

b.—If ossification of epiphyseal cartilages complete, the skeletal changes are characteristic of acromegaly.

Acromegaly may be engrafted on primary gigantism, resulting in an acromegalic giant.

B.—Characteristic skin—subcutaneous and visceral changes.

(The above symptoms have been described as due to over-function of the anterior lobe.)

2.—Hyperglycemia and glycosuria—

There is experimental evidence that stimulation of the posterior lobe produces hyperglycemia and glycosuria in animals.

Furthermore, glycosuria may be present during active stages of pituitary gigantism and acromegaly.

II.—Under-function (hypopituitarism).

1.—At puberty—

Skeleton takes on feminine form and also in males there is little or no beard and feminine distribution of pubic hair. In females likely to be absence of axillary and pubic hair.

2.—Before puberty—

Failure of development of external and internal genitalia, resulting in some degree of sexual infantilism.

3.—After puberty—

Diminished sexual activity or complete loss with impotence or amenorrhea.

Identical skeletal and genital conditions can be produced in dogs by partial anterior lobectomy.

(The above symptoms have been described as due to decreased function of the anterior lobe.)

4.—Before full stature obtained—

Bones do not develop to normal size. Result is a fairly normally proportioned dwarf.

On this point there is considerable doubt. Dwarfism is probably not due to disturbance in the pituitary alone.

5.—Adiposity, whether onset before or after adolescence.

6.—Increased sugar tolerance.

7.—Drowsiness and mental dullness.

8.—Asthenia and lowered body temperature.

9.—Hypotension.

10.—Polyuria—

At present weight of evidence in favor of lesion of posterior lobe, either direct or by pressure, as cause of diabetes insipidus.

11.—Epilepsy—

A certain number of epileptics are found among adipose hypopituitary cases where there is no evidence of tumor.

(The above symptoms have been described as due to decreased function of the posterior lobe.)

12.—Fröhlich's syndrome—

Adiposity associated with genital infantilism. Condition has been produced in animals by removal of posterior lobe and part of anterior lobe. Clinically the condition is one of hypopituitarism.

III.—Dyspituitarism—

Theoretically various combinations of over- and under-function of both lobes are possible. Any combination may begin before or after puberty with different results. Furthermore, hypofunction may follow hyperfunction of the same lobe.

IV.—Polyglandular syndromes—

The problem of disordered pituitary function is sufficiently complicated in itself, but becomes even more intricate by the tendency of other ductless glands to enter into the picture.

V.—In regard to pituitary, apart from the clinical signs enumerated, there are certain procedures which may give valuable aid. As for example:

- 1.—Signs and symptoms of brain tumor.
- 2.—Wassermann.
- 3.—Visual fields.
- 4.—Sugar tolerance.
- 5.—Basal metabolism.
- 6.—X-ray of sella turcica.
- 7.—Blood pressure.
- 8.—Temperature changes.
- 9.—Careful kidney studies.

The subject of pituitary gland therapy is certainly one about which the profession needs more information, and especially information which is both detailed and accurate. For this reason it is to be hoped that in dealing with such cases clinicians will emphasize the following points:

1.—Careful and detailed clinical and laboratory study for the purpose of detecting evidences of disturbed gland function. Such studies are particularly necessary in cases where there may be disturbances in more than one gland.

2.—The use of gland products with special reference to the clinical symptoms. Up to the present practically no therapeutic effects have resulted from the use of the anterior lobe of the pituitary alone and the effects from the use of the posterior lobe have not been encouraging. Generally speaking, where results have been obtained the whole gland has been used. It would be of interest to collect more data on the therapeutic use of separate portions of the gland.

3.—In general the use of the pituitary gland products alone rather than in combination with other glandular products. This suggestion is made in order to procure more accurate therapeutic information. Certainly very little is to be learned from the use of hit or miss polyglandular products.

OVARIAN GLAND THERAPY.

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To obtain a clear idea of the present status of ovarian gland therapy it is wise to review some of the facts regarding the source, action and preparation of the material used in the treatment.

It has been practically proved that the cells

of the corpus luteum and the theca cells of the Graafian follicles, especially the atretic ones, manufacture the secretion. It is probable that there are interstitial cells in the stroma of the ovary that also supply the secretion. The presence of these cells in sexually mature ovaries is denied by some (Myer, Frankl), and though declared to be present, their secretory activity is thought to be slight by others (Fellner).

The isolation of the exact secretion chemically has not been satisfactorily proved up to the present. Fellner has isolated what he terms a sexual lipid from the corpus luteum, interstitial cells, and placenta, which experimentally causes enlargement of the uterus, vagina and breasts, but does not influence menstruation. Herrman has isolated a somewhat similar one, Seitz also. Wintz describes two substances from the corpus luteum which appear to have opposite effects on the blood pressure, coagulation time, and bleeding from the uterus. There is no unanimity of opinion, however, as there is in regard to the internal secretion of the adrenal and thyroid.

It is thought by some that there is more than one secretion with somewhat different effects. Theoretically, extract of corpus luteum is supposed to inhibit menstruation because of the large, permanent corpus luteum found in pregnancy, and its use is accordingly advised in excessive bleeding, while extract of the whole ovary and of the ovary without the corpus luteum are used for decreased menstruation and amenorrhoea. Opposed to this is the experience of many that corpus luteum and whole ovary extracts appear to have the same effect on abnormal bleeding. Graves' suggestion that, as the different cells which manufacture the secretion have the same embryological origin, it is probable that their secretions have the same qualities, is reasonable and is borne out by clinical experience.

A great difficulty in this therapy is that the manufacturers have no common process for producing the preparations which are used, and there is no means of standardizing them. The tissue of the glands of internal secretion is said to deteriorate more rapidly than other tissues, so the manufacture should take place immediately after removal. The ovarian preparations, except those put up in ampules, seem to deteriorate in time and should be used comparatively soon. The corpus luteum extracts appear to do this earlier than the others. This deterioration is probably a decomposition which shows its presence by a digestive upset in the patient.

The preparations used are an extract of the whole ovary; an extract of the ovary with the corpus luteum previously removed, called ovarian residue; and extracts of the corpus luteum alone. They are put up in capsules of the powder, in tablets, and in ampules, the last being reserved mostly for corpus luteum extract in this country.

The mode of action of the preparations is not definitely settled. It may be simply a stimulative action on the ovaries and other glands of internal secretion which appear to be closely related to the ovary, the thyroid, adrenal and hypophysis. It may be a substitute for an entire lack of ovarian secretion, as after castration, but this action does not appear to be as definite as in the case of thyroid extract used in cretinism. Esch thinks the action is so unspecific that it may be explained as a reaction against a protein. He has had suggestive results in treating menstrual disturbances with human milk protein given subcutaneously, getting effects similar to those following ovarian organotherapy.

On the whole it is probable that the effect is a stimulating or balancing effect on the internal secretory organs with some substitutive action.

From this review it may be deduced that there is no settled method for using ovarian preparations. They are all being tried for all the various diseases without bringing any one of them strikingly to the fore for any particular disease. Attempts are being made to increase their efficiency by combining other gland therapy with them in cases which show derangement of two or more glands.

The characteristic symptoms for each gland and combinations of glands are gradually being worked out. It must be remembered in all organotherapeutic treatment that more than one gland may be at fault.

They are perhaps most useful in treating the symptoms of the menopause, the hot flushes, nervous troubles and high blood pressure. It is generally acknowledged that all three preparations are valuable, but that the whole ovary and residue are more efficacious than the corpus luteum. The hot flushes, which is the symptom that the patient complains of most, are relieved to a great extent and in a good many cases stopped. The general condition is improved, showing that there may be a tonic effect. In the artificial menopause, following castration, the effect is more prompt and decided than in the natural menopause. The symptoms following castration may be avoided to some extent by starting the ovarian extract before operation. This may be advisable in the nervous, high strung, thin type of woman.

There are cases of high blood pressure occurring at the natural menopause which show no organic lesion, such as cardio-renal disease. Ovarian extract here seems to lower the blood pressure in some cases, but must be kept up in large doses for some time to obtain the effect.

Menstrual irregularities, such as delayed catamenia; slight bleeding before and continuing after the usual menstruation; clotting and temporary functional amenorrhoea are all favorably influenced by ovarian therapy, bringing about a normal cycle.

There are some cases of headache of the migraine type occurring at menstruation only and

disappearing at the menopause, which give brilliant results with the use of ovarian therapy. The residue or whole ovary is used.

Menorrhagia and metrorrhagia must be of the internal secretory type to be influenced by this therapy. If there is any definite pathology, such as fibroids, polyps and pelvic inflammation, organotherapy is not indicated. There are a good many reports of the successful treatment of the bleeding at puberty and the climacteric treated by this method, the most promising being those from Germany, where the preparation is given more often intravenously than here. It is in these cases that many recommend corpus luteum extract especially.

Amenorrhoea of a permanent type, coming on with a progressive decrease in the amount of menstruation or characterized by only occasional periods, is not so amenable to this treatment. It must be kept up for a long time in rather large doses. If the patient is putting on weight rapidly it may be wise to add thyroid extract to the ovarian. They may menstruate more often under treatment, but are not likely to have the normal menstrual cycle re-established.

The treatment of essential dysmenorrhoea, where there is no pathological condition except mal-development of the uterus, is fairly successful in relieving the discomfort and increasing the amount of flow in a good many cases. Here again the reports from Germany under intravenous administration are more promising. It is generally acknowledged that the residue and extract of the whole ovary are more efficacious than the corpus luteum.

The value of ovarian therapy in sterility is not definitely established, but it is used in those cases which complain of amenorrhoea and dysmenorrhoea.

It is recommended in the vomiting of early pregnancy, but the reports of its results are conflicting. Here extract of corpus luteum is used on the theory that the vomiting is due to an undersecretion on the part of the corpus luteum of pregnancy. From the same point of view corpus luteum is administered to cases having successive miscarriages without demonstrable cause. Not enough work has been done to determine its value.

Ovarian therapy is recommended for lactation atrophy, infectious such as kraurosis and furunculosis of the vulva after the menopause, on the theory that it increases the blood supply to the parts; mild cases of hyperthyroidism, as the ovary is believed to be antagonistic to the thyroid; and in chlorosis combined with the usual treatment.

We think it fair to conclude that ovarian therapy is valuable, but it is not established on a sound basis as yet, because the actual secretion has not been isolated; the preparations are not standardized as to strength; and they deteriorate fairly rapidly.

DISCUSSION.

DR. J. C. AUB: Throughout the evening, a discussion of the interrelation of glands of internal secretion has been avoided. The impression from the symposium has been discouraging as to the present value of the use of these various glands in treatment of true endocrine disorders. I think it ought to be brought out that there is the added difficulty of diagnosis, which is increased because most cases present not a defect of one gland but of several.

The basal metabolism, which is the only good functional test for the internal secretions, demonstrates this difficulty. It is affected not only by the thyroid gland, but also somewhat by disturbances of the gonads and pituitary, though very possibly these last two produce the effect by means of an interrelation with the thyroid. On the other hand, the adrenal gland seems to be an independent mechanism and may cause fluctuations of short duration, probably through its secretion—adrenaline. This, therefore, suggests the complexity of their activities, and the difficulty of determining which gland is primarily at fault in disease. While the relationship of these glands to each other is not clearly understood, we cannot give adequate treatment.

DR. W. B. CANNON: Dr. Aub asked about the importance of knowing the interrelations of these glands. I have no doubt whatever that they are very intimately interrelated. We have good evidence in some instances of the way in which the destruction, or overaction of one gland will affect another, but the relations are highly complex. We must learn about them, however, before we shall have a thoroughly rational mode of taking care of complicated endocrine disorders.

Dr. Lawrence spoke of using the whole adrenal gland. It is a double gland and he is, therefore, using two substances. I suggest he be bold and separate the double gland into its parts and see what each one will do by itself. Then we would know from what he gets his results. I would make the same suggestion to Dr. Ohler. He is using the whole pituitary. There are, perhaps, three glands, certainly two, in the pituitary, and it might be well for him to try using each part.

Original Articles.

EPIDERMOPHYTOSIS.*

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THE frequent references to epidermophytosis which we are now seeing and its great prevalence, I believe, warrant this brief sketch of the disease and of its laboratory investigation. The condition is undoubtedly frequently seen by the general practitioner and usually classed with the eczemas, the fact not being recognized that it is parasitic and contagious, extremely difficult to eradicate, and always a potential source of infection to others, besides being exceedingly uncomfortable and often crippling to its possessor.

Epidermophytosis is a form of ringworm. The disease ringworm or tinea includes ringworm of the scalp, tinea capitis; ringworm of the beard, tinea sycosis; tinea circinata, a

superficial, ephemeral ringworm of the glabrous skin; ringworm of the nails; and epidermophytosis, or eczematoïd ringworm, and in discussing the last we exclude from consideration all the others.

The fungi causing these various forms of the disease belong to three genera: Microsporon, Trichophyton, and Epidermophyton. Strictly speaking, the name epidermophytosis is not correct, implying as it does that this form of the disease is always caused by some species of the Epidermophyton. That this genus was always the cause was the original conception, but recent work has shown the genus Trichophyton in a large proportion of the cases. However, the name epidermophytosis has thus far been retained since it embodies our concept of the disease as distinguished from the other forms of ringworm. This concept is as follows: A chronic, contagious, fungous disease of the skin; highly resistant to treatment; at times to be seen on practically any part of the body, but involving most commonly the hands, feet, groins, and peri-anal region, less often the axillae and under the breasts, all locations where there are heat and moisture, factors favorable to the growth of the fungus. Subjectively, it is usually pruritic, at times excessively so, but practically never negligible from the patient's point of view if the process is at all active.

The form of the disease known as tinea eruris or eczema marginatum was described as early as 1869 by Hebra, but the other forms are of much more recent recognition. The following is a very brief clinical description of the more common forms of the disease.

On the feet it ordinarily manifests itself as a maceration of the skin at the depths of the interdigital spaces, most often between the little and fourth toes. At times macerated hyperkeratotic masses can be shelled out, the so-called soft corns. From the interdigital spaces there may be extensions onto the plantar and dorsal surfaces of the feet, made up of deep vesicles with steel-blue centers and collarettes of fine scales where these vesicles have broken and dried. Very commonly the nail of the little toe is infected and is opaque, softer than normal, thick and irregular, and other nails may be involved. This form ordinarily gives rise subjectively only to occasional itching, but in warm weather or after much walking in shoes and socks which do not allow sufficient aeration the fungus becomes active, the vesicles break out, sometimes becoming bullous on the balls of the toes, and there is severe itching. Another form found on the feet is the hyperkeratotic, in which are seen peculiar yellowish keratotic areas on the soles or heels, not necessarily at points of pressure.

The form of the disease known as tinea eru

*Read in part before the Worcester District Medical Society.

ris or eczema marginatum is undoubtedly familiar to most physicians. It occurs on the inner surfaces of the thighs in the crural region and may extend downward or onto the scrotum and penis and backward over the perineum to the peri-anal region. It manifests itself as a rather dark red, circular area whose border usually shows many fine vesicles, and whose center does not clear as does the ordinary tinea circinata. The surface is rather moist and papular and shows delicate scaling. In the perianal region there is usually some whitish, sodden, macerated epithelium to be seen on a reddened base. Subjectively there is a stinging, burning sensation rather than a real itching, but in the peri-anal region there may be a marked pruritus.

The disease, as it affects the hands, consists of persistent and recurring attacks, lasting over many years, of areas of erythema with scaling, infiltration and fissuring, and always at some time showing the characteristic deep vesicles, usually at the advancing margins. Its most common location is on the backs of the hands, extending onto the webs of one or several fingers. There is involvement of the contiguous finger surfaces, oftenest of the proximal phalanges, but at times extending to the tips and involving the nails. The so-called washerwoman's eczema is probably a fungus infection, and recent work has shown certain yeasts to be the infecting organism in some cases rather than the genera with which we are concerned.¹ All these fungous infections of the hands have for years been diagnosed as eczema, and we are seeing in our clinics cases which years ago were so considered, which have been relieved, but which recur year after year. It is not improbable that all cases of eczema of the hands may be due to fungi, excepting dermatitis from external irritants, infantile eczema, and those of pyogenic origin.

These are the chief and most common forms of epidermophytosis. On other parts of the body they are less distinctive and usually a clue to their origin is to be found in a primary, typical focus on one of the commonly involved regions.

The disease is astonishingly prevalent and apparently increasingly so. In 1919, at the Skin Department of the Massachusetts General Hospital, there were diagnosed 55 cases, including those of eczema marginatum, out of a total of 4065 new patients. At present we see each day at least one new case, frequently four or five, and it should be borne in mind that these are only the ones which are giving symptoms sufficient to bring the patient to the hospital. In a series of 50 patients who came with other troubles one out of two showed evidence of the disease, ready to light up, given the proper conditions, and, what is most im-

portant, each one a potential source of infection. Nor is this a disease of the unwashed outpatient. One of the staff at the Massachusetts General Hospital finds it fourth in frequency among the diseases he sees, being outnumbered only by acne, eczema and alopecia. It is very prevalent among students and gymnasium frequenters, one of the popular names for eczema marginatum being "jock strap itch," undoubtedly indicating an accurate observation as to one source of infection. In these gymnasium cases it seems probable that the mats and floors of the showers may be sources of infection. In some cases laundries seem to be implicated, and we have several times seen an acute attack follow the doing of a washing in which presumably some of the clothes were infected. Recently we have seen a very acute case which came on immediately after wearing an old pair of gloves while covering with asbestos preparation a hot steam boiler. The combination of wearing the probably infected gloves with the heat and moisture incident to the work brought on the sudden, universal infection of both hands. It is quite possible that the fashion of wearing heavy wool socks in recent years is responsible for part of the increase in this disease, since such hosiery not only keeps the feet moist and warm but also cannot be sterilized by boiling.

LABORATORY INVESTIGATION.

The cultivation and identification of parasitic fungi, or even their microscopic discovery in the scales and hairs, is always a matter involving time and patience. For some reason the usual clinical manifestations of these mycotic affections are cut of all proportion to the amount of fungous growth found, and it very often is a matter of long and careful search before the parasite is discovered. Naturally a negative result in such cases leaves one uncertain whether the fungus is really missing or only missed.

It is possible that much of the clinical manifestation of these diseases is in the nature of a trichophytide, which (like the tubercle) may be a manifestation in a sensitized skin of the presence of the fungus elsewhere on the body. An interesting discussion of the trichophytide is to be found in Bloch's article.² The laboratory end of the study of these mycoses resolves itself into two parts: (a) The examination of the fresh material—scales, hair, or nails; and (b) the cultivation and identification of the fungi.

Examination of the Fresh Material.—(1)

Selection of Material. (a) In the macerated interdigital foot cases the best material will be found at the advancing borders of the lesion. In practically every case there will be seen at the junction of the eroded and macerated area

with the normal skin a delicate sealy border, with the matted end of the desquamating epidermis toward the lesion. If this edge is raised with forceps and gently peeled off toward the normal skin it will most often be found to contain the parasite. The white, macerated material, in my experience, is useless for microscopical and cultural purposes since it is loaded with contaminating pus organisms and saprophytic fungi. These directions also apply to the cases of *tinea cruris* or *eczema marginatum*.

(b) The vesicular type. If seen very early in the vesicular outbreak, one should cut off the roofs of some of the vesicles and invert them on the slide so as to examine their under surface. It is a peculiar fact that not all the vesicles so examined will show the parasites, no matter how carefully the examination is made. As far as I know, there is as yet no way of telling from their clinical appearance which vesicles are infected. It is possible that only the early lesions will be positive. Only within the past two weeks have I seen a case in which every vesicle examined was positive, and that was a very acute and extreme case involving both hands, with marked trichophytides on other parts of the body. Mitchell of Chicago, in his recent article on the subject in the *Archives of Dermatology*,³ states that the brownish, dried vesicles yield him the best results, and my experience agrees with this, especially in the older cases. Sometimes the desquamating collarettes left from this vesiculation will be positive. Crusting and exudative material is of no value, nor are the parakeratotic scales which are often seen.

(c) In the nail cases it is well to scrape the surface with a glass slide and from this cleaned surface to pare thin pieces with a knife. The scrapings with glass are beautifully thin and one is tempted to use them, but they are not of much value because the fungi do not grow in one stratum, and too thin scrapings may only show them in section, when they are unrecognizable.

Having taken the material to be examined, it is the best procedure to keep it between two glass slides whose contiguous surfaces have been flamed. These can be held by a rubber band and marked with a colored pencil for future identification. I believe the slides are superior to envelopes or paper containers since it is much easier to cut up and manipulate the scales in planting when they are on a glass surface; the scales often stick to the paper containers and it is difficult to remove them with as little handling as in the use of slides; and then, too, the paper containers are never sterile.

After the material is collected it may be kept almost indefinitely before planting, and

a certain amount of delay is advantageous since it may eliminate many of the bacterial contaminations. An exception to this statement arises in the case of the examination and planting of fresh vesicles. These should be planted and examined immediately. The roofs of vesicles when dried are much more frequently negative than fresh ones from the same case.

For the microscopical examination of the material, use is made of the clearing effect of KOH or NaOH on the tissue cells, while the fungi are resistant, the result being that the fungi show as refractile bodies against a fairly clear background. The disadvantage in the use of KOH is that in a comparatively short time, depending on the strength used, the fungi are affected also, so that for permanent preparations some other clearing solution is necessary.

For rapid work a 40 per cent. aq. solution of KOH is used and the slide very gently heated. By this method scales may be examined in a few minutes. For slower clearing and more permanent preparations which will keep for about ten days one may use equal parts of a 30 per cent. solution of KOH and glycerine. This should be heated also, and scales are well cleared in one or two hours if not too thick. This is the method of choice unless permanent preparations are wanted.

For permanent preparations which will last for six months to a year, or perhaps slightly more, we use

Lactic acid	1 part
Phenol	1 part
Glycerine	2 parts
Distilled water	2 parts

This clears quickly and well, its only disadvantage being a tendency to the formation of very fine, long crystals which might deceive the beginner when searching for the fungi.

These permanent mounts have to be ringed with a cement, and by far the most satisfactory for this or any similar purpose is one made by Professor R. E. Schuh, Howard University, Washington, D. C.

Before clearing scales it is always wise to remove the fat by washing with ether. The KOH on a scale which contains much fat gives rise to many refractile globules which may be very deceptive and may make one think they are mycelial fragments. These globules, however, vary a great deal in size—much more so than mycelial fragments ever do. The KOH also affects many of the epithelial cells, so that they appear crowded with spores; an appearance which should not deceive the investigator, since these fungi do not penetrate the cells and do not form spores in the human host.

Having mounted and cleared the specimen, one searches with patience for the parasite,

which should appear as a refractile septate strand—sometimes branching, and sometimes broken up in a chain of fragments. Often separate fragments or bodies resembling them are seen, but one should never make a positive diagnosis on one or more fragments unless they are found in chains. These fragments are commonly spoken of as spores, but most authorities agree that they are not true spores but fragments of the hypha or vegetative part of the fungus.

The high dry lens of the microscope should be used, with much of the light cut off, and since the scales are usually quite thick one must examine all levels by focussing up and down. When expert, the fungi can frequently be picked up with the low power, which is a great saving of time, but in all cases, before pronouncing a case negative, several hours should be spent in careful search.

There are various staining methods which have been used to demonstrate the fungi in scales and hairs. Personally I do not use any of them for the ordinary clinical work. They take much more time than the methods just described, and are uncertain and rather unsatisfactory in their results. Practically their only advantage is in the making of permanent preparations, and even in the best preparations there is a certain amount of distortion, so that the picture is not the same as that of the fresh specimen.

All the fungi show two stages of growth—the simple vegetative, and the form in which certain portions of the hyphae are differentiated for the purpose of reproduction. The primary reproductive body of the fungi is called a spore, and in the fungi it performs a function analogous to that of seeds in the higher plants. The vegetative forms are practically all alike—certainly not sufficiently different to allow identification of the different genera and species in the scales or hairs, so that the manner of producing spores or fruiting bodies is the chief means at present known for such identification. The reason for this short excursion into mycology lies in the fact that in the host the fungi show only their vegetative form, and in order to discover their manner of spore production and other distinguishing features they must be grown outside the host. This, then, is our reason for cultivating these organisms, to allow of their identification and classification, and to correlate if possible the various genera and species with definite clinical manifestations. Such work has not advanced very far. The mycological classification is still very hazy and the differences between many species are slight. One other mycological detail must be mentioned before considering the culture media. On the media containing sugars most of these fungi, after a varying length of time, take on

the so-called pleomorphic form, which is a return to the vegetative manner of growth. This shows as a white, fluffy overgrowth of hyphae, which do not produce spores, and transplants from which always show this same pleomorphic growth, never the characteristics of the original culture. On this account all cultures have to be grown on two media, one containing carbohydrate to show the fructification, and the other, without carbohydrate, to preserve the culture from the pleomorphic change.

All these fungi show different manners of growth on different media, and the following were devised by Sabouraud in Paris as international proof media, so that results in different countries might agree. Unfortunately the war interfered with the production of the French sugars used, so that work is now being done in this country to find what sugars can be used with the same result.

Sabouraud's media were as follows:

(a) Glucose	4%	(b) Maltose	4%
Peptone	1%	Peptone	1%
Agar	1.5%	Agar	1.5%
and (c) The conservation media			
Peptone	3%		
Agar	1.5%		

The French glucose and maltose are no longer obtainable, but it has been found that for practically all purposes American pure dextrose (DifCo) will do. French peptone (Peptone Chassaing) is necessary in growing certain fungi on account of its acidity, and it is still available.

The ingredients are mixed as usual in making media, and sterilized, care being taken not to overheat in the sterilization as this changes the sugars. Short fractional sterilization is the best method. For the first plantings of the original material slants in tubes are used. For further study of the growths obtained plants are made in Erlenmeyer flasks, which give more material and space for the fungi to show their characteristic manner of growth. Petri dishes may be used, but they do not give a sufficient depth of media, and contaminations are apt to creep in at the edges. The water of condensation which collects on the cover also interferes with inspection and photography of the growth.

In making the first plants the dried scales are cut up into very small pieces and planted on the agar, about four pieces to a tube. At least 20 plants should be made in each case, but often as many as a hundred are necessary before getting a growth. The great obstacle to pure cultures is the presence of pus organisms and saprophytic moulds. Various methods have been used to inhibit these, such as flaming the scales, washing in alcohol, putting gentian violet (1:500,000) in the media, etc.,

but none of these are very satisfactory. Contaminations are the great bane of this work.

The cultures are grown at room temperature. After obtaining a growth it is transplanted to the three different media and its growth on each is compared. It is grown in hanging drop preparations of glucose bouillon, and direct mounts are made and mounted in glycerine for study. The authoritative work on this subject is by Sabouraud.⁴ Unfortunately our results do not always check up with his, partly because our media differ, and partly, also, because we probably have a different flora in this country.

This part of the subject should not be left without warning any who may be interested that the results, especially of the cultures, are distinctly discouraging compared with the amount of time and patience expended. Personally, after nearly two years' work I am unable to get growths in more than one out of four or five cases investigated—that is, of the cases in which the skin is affected. In practically every case of ringworm of the scalp the fungus can be grown. The work is important, however; it offers practically a new field and can be carried on in spare moments and without the necessity of elaborate laboratory paraphernalia.

TREATMENT.

In marked contrast to *tinea circinata*, epidermophytosis is ordinarily very resistant to treatment, and it is difficult to explain why an organism which exists in the host only in its vegetative form should be able to resist for so long parasiticial applications, or why it should so frequently recur in its original site long after all traces have apparently disappeared.

Probably the application most commonly used in this country is Whitfield's ointment. The formula for this as given in the last edition of Whitfield's book is:

Acid benzoic	gr. XXV
Acid salicylic	gr. XV
Paraffini molli	3 II
Ol. coccois nuciferae	3 I

Most dermatologists in this country use it somewhat stronger than this, even up to 12 per cent. and 18 per cent. of the salicylic and benzoic acids respectively. To a certain extent this ointment may be used as a therapeutic test, since dermatoses resembling epidermophytosis are quite apt to be made much worse by its use. A certain number of bona fide cases of the disease are, however, much irritated by Whitfield's ointment, so that the test is not decisive.

In France, chrysarobin in one per cent. strength is used more than in this country. Its drawbacks are its staining properties and its severe irritant action if not used with precaution. There is no doubt, however, that it

is a valuable application. It may be used in an ointment or painted on in liq. gutta percha.

Whitfield recommends for the constituted foot cases:

Chrysarobin	3 I
Ether sulphurici	
Acetone	aa 3 IV ss

painted on during the day, and the benzoic and salicylic acid ointment at night.

Iodin undoubtedly has stronger parasiticial effect on these fungi *in vitro* than any of the other substances employed. When used clinically, however, it is far from being infallible. It is used as the tincture, painted on; in ointments, 5 per cent., goose grease being the best excipient.

Dr. E. Wood Ruggles⁵ reports success from the use of this ointment:

Zinc Oxide	6.
Ung. picis liq.	12.
Phenol	1.
Ung. Aq. Ros.	18.

followed, after the eruption has well subsided, by

Tinct. Iodi.	4.
Spir. Camph.	ad 28.

Other methods are 1:5,000 potassium permanganate soaks or hot fomentations for 15 minutes three times daily—combined with Whitfield's ointment. Saturated aqueous solution of picric acid painted on twice daily for a week. This should not be used continuously for longer than this on account of danger of absorption.

The x-ray has been used with some success and seems to act by modifying the skin so that it is no longer favorable to the growth of the fungus. The x-rays are not directly parasiticial.

Ultra-violet ray therapy acts favorably in a certain number of cases, probably because of its desquamating effect.

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AUTOMOBILE EXHAUST GAS AS A HEALTH HAZARD.*

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WITH every advance in industry and the arts there is liable to be associated some new physiological strain or health hazard. This has been

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true of machinery, of the chemical industries, of electricity, and it is now proving true of man's latest and most widely used utility, the automobile. As a rule, however, the hazard has been confined to some particular group of workers or class of persons. The risks involved with the automobile are, however, almost universal. The loss of life in accidents as reported in the daily papers is so common that it is receiving serious attention, although not yet very effective measures of amelioration,—as everyone knows.

But it is not very generally realized that the exhaust gas from automobiles constitutes scarcely a less serious health hazard. Fortunately, however, engineers are beginning to recognize that the sanitary side of large public undertakings, and even of some private developments, deserves study, and the public is learning to expect this protection. Accordingly, when plans were made for the construction of the first long vehicular tunnel in this country, these plans included extensive investigations of the basic facts necessary to the ventilation of such a tunnel, so as to render it not only safe but practically innocuous to its passengers. This is the more important as such tunnels will probably, to a considerable extent, replace bridges in future, both because of their cheaper construction, and because they do not obstruct the waterways.

The Commissions of the States of New York and New Jersey, charged with the construction of the vehicular tunnel, or rather tunnels, under the Hudson River, arranged with the United States Bureau of Mines to undertake these basic investigations. The work was divided into several special problems, of which we need here consider only two, namely: (1) the amount and chemical composition of the exhaust gas produced by various cars under various conditions of speed, load, and temperature; and (2) the physiological effects of the substances in exhaust gas, and their allowable amounts not involving appreciable ill effects when such gases are breathed.

The first of these problems was placed in the charge of Mr. A. C. Fieldner, at the Bureau of Mines Experiment Station, in Pittsburgh. An extensive investigation was carried out by him and his collaborators, and has shown that to a large extent the deleterious character of exhaust gas of automobiles arises from the tendency of drivers to adjust carburetors so as to afford a maximum of power, rather than to utilize fuel with the maximum efficiency.¹ The gasoline mixtures used are generally much richer than would be best both from an engineering and sanitary standpoint. More flexible carburetors and greater use of the adjustments, so as to attain the required speed and power with a minimum of fuel, would not only

result in reducing the waste of gasoline, but in an exhaust gas distinctly less injurious to health. These investigations show that approximately one-third of the fuel value of gasoline is wasted and that the carbon monoxide, the particular toxic constituent of exhaust gas, averages about 7 per cent. As regards the total quantity of exhaust gas produced, it is sufficient to say that most passenger cars, with the usual carburetor adjustment, produce from 1 to 2 cubic feet of carbon monoxide per minute.

The second problem above referred to was investigated by the writer with the collaboration of Dr. H. W. Haggard, Dr. A. L. Prince, M. C. Teague, R. M. Wunderlich, and a number of chemists for the analytical work, in the Laboratory of Applied Physiology in Yale University.^{2, 3} Our investigations have completely confirmed the conception of Paul Bert, Haldane, and other investigators, that carbon monoxide does not form a permanent compound with the haemoglobin of the blood, but competes with oxygen. It has an affinity about 300 times as great; it is able not only to displace oxygen but to be again displaced by oxygen, when a person who has absorbed a certain amount of gas breathes pure air, or air enriched with oxygen. Our investigations also show that carbon monoxide has no other toxic characteristic except its combination with haemoglobin and exclusion of oxygen; it has no direct effect upon nerve cells; all of the nerve degenerations induced by carbon monoxide are due to this asphyxia. Dr. Haggard has, indeed, even succeeded in growing nerve tissue in considerable amounts of carbon monoxide.⁴ Animals, such as flies and other insects, which have no haemoglobin, are as entirely immune to any effect of carbon monoxide as they would be to nitrogen, the most inert of gases.

Our investigations show further that when gasoline, distilled from petroleum, is used, practically the only toxic constituent in the exhaust gas is carbon monoxide. When, however, benzol, and probably other related substances are present, as in some of the automobile fuels now sold, the amount of these substances escaping in the exhaust gas adds decidedly to its toxicity.⁵

Our investigations were carried out at first on ourselves and the other members of the investigating staff, in an air-tight room, lined with sheet iron. The data so obtained were later confirmed by large-scale experiments in which a dozen or twenty people at a time sat or moved about in a garage building in which a Ford car was installed. A drop of blood was drawn from a finger and analyzed colorimetrically for the percentage saturation with carbon monoxide; the pulse was counted; the volume of respiration measured; and the effect of exercise after running up and down four flights of

stairs, was noted. The Romberg test for steadiness was used in some cases.

The best of all indications proved, however, to be the headache induced by carbon monoxide. This is the characteristic oxygen deficiency phenomenon, observed in persons at great altitudes, and induced in nearly all persons by certain degrees of saturation with carbon monoxide, although there are some individual differences in the exact point at which it appears. It is usually of the throbbing frontal type, more rarely occipital. It easily passes into nausea and is accentuated by exertion.

Space forbids a detailed description of theory or experiments, but data were obtained sufficient to prove that the rate at which carbon monoxide is absorbed from air is such that at least an hour is required for the blood to attain a degree of saturation equal to half that which would finally be attained by a stay of indefinite duration.

From these demonstrations the following rule was derived for practical use: When the time is expressed in hours and the saturation in parts per 10,000 there will be no appreciable physiological effect when the product of the time multiplied by the saturation equals 3; when the product of time by concentration equals 6, there will be in some persons slight effect; when it equals 9 there will be in nearly everyone a distinct effect; when it equals 15 the condition is dangerous. An allowable vitiation, not exceeding 4 parts of carbon monoxide in 10,000 of air, is, therefore, recommended as a practical standard for vehicular tunnels.

It is quite certain that this standard is very often exceeded in garages. Severe headaches are extremely common among mechanics, and others, who work around automobiles; so much so that repeated partial asphyxia is a distinct health hazard.

The data given above will serve to indicate the character of the hazard in the small private garage. During the winter months in the northern States asphyxiations in such private garages are unfortunately quite common. The owner starts his car before opening the doors in order to get the engine warm. If the garage is 10 x 10 x 20 ft., giving a capacity of 2,000 cubic feet, and the car produces 1 cubic foot of carbon monoxide per minute, it requires only 1 minute for the vitiation which we have recommended for the tunnel to be reached; and in five minutes the atmosphere contains 20 parts of carbon monoxide in 10,000 of air, an amount sufficient to induce rapid asphyxiation. And, of course, if the car continues to run, the vitiation mounts steadily toward a rapidly fatal concentration of carbon monoxide.

In addition to our experiments on men, which could not, of course, be pushed beyond the point of severe headache, we have performed an extensive series of experiments on animals, which

we carried to the point of extreme, or even fatal, asphyxiation. These experiments were performed with pure CO, with exhaust gas from automobiles, and with illuminating gas. They show that CO is practically the sole toxic constituent in exhaust gas when pure gasoline is burned. Illuminating gas, however, owes, perhaps, 20 to 25 per cent. of its toxicity to some other constituent, perhaps benzol. Gasoline, as sold in some places, is mixed with coal distillate, which contains benzol, and produces a correspondingly more toxic exhaust gas.

Gasoline vapor itself has been found in our experiments to have qualities somewhat like those of ethyl ether.⁶ It is an anaesthetic, but the stage of excitement passes through a very narrow region of full anaesthesia into convulsions ended by death. In the toxicity of exhaust gas unburned gasoline is not an appreciable factor. Workmen are, however, sometimes overcome when they go into a large tank in which gasoline has been stored. Benzol is much more toxic, as Dr. Alice Hamilton has recently pointed out.⁷

Finally, these investigations have led on to the study of the treatment of CO poisoning. Obviously the first step in any treatment must be the restoration of spontaneous breathing, if it has stopped. For this purpose the manual prone pressure method of artificial respiration is to be recommended above any apparatus, for it is as effective, or even more effective, than apparatus, and it can be applied instantly, while the bringing and adjustment of apparatus involve delay. A delay of even a couple of minutes may sometimes be fatal.

The next step, after spontaneous breathing, must obviously be to accelerate the elimination of carbon monoxide from the blood. For this purpose the inhalation of oxygen has long been recognized as the specific procedure. But the difficulty arises that after a long exposure to an atmosphere containing carbon monoxide, respiration is very much depressed, and the inhalation of oxygen has no very stimulating effect upon the volume of breathing. It occurred to my associate, Dr. H. W. Haggard, and myself, to utilize the stimulating action of carbon dioxide. In a series of experiments on dogs we found that in animals which were brought almost to the point of death, and then allowed to recover spontaneously in air, the period of elimination of carbon monoxide from the blood covered several hours. When the subjects were made to inhale oxygen the rate of elimination was at first not very much more rapid, the reason being that the oxygen was inadequately inhaled. When, however, a small amount of carbon dioxide was added to the oxygen a very active breathing was induced, by which the lungs were so effectively ventilated, and the oxygen was given so free an op-

portunity to act upon the blood, that after a period of a quarter to half an hour nearly all of the carbon monoxide had been eliminated from the blood.⁸

Recently the American Gas Association, representing practically all of the illuminating gas interests of the country, has requested Dr. C. K. Drinker, of the Harvard Medical School, to organize a commission for the further investigation of the subject of resuscitation from illuminating gas poisoning. The members serving on this commission are, Dr. Drinker, as chairman, Drs. D. L. Edsall, W. B. Cannon, L. J. Henderson, W. K. Lewis, F. W. Peabody, Mr. C. B. Scott of the Bureau of Safety, Dr. R. R. Sayers of the U. S. Bureau of Mines, Drs. Howard W. Haggard and Yandell Henderson. The last two named have been appointed a sub-committee to investigate the efficacy of the above-mentioned treatment. Through the courtesy and coöperation of the Consolidated Gas Co., of New York City, which has placed at our service its emergency wagons, and with the support of Health Commissioner Copeland, and the hospital authorities of New York City, we have been able to give the method an extensive test. The results indicate that a deeply asphyxiated patient, who can be reached within a half-hour—and the utmost speed at this time is essential for success—and who is then given inhalations of oxygen containing 5 per cent. carbon dioxide, can be practically freed from carbon monoxide within 30 to 40 minutes. Frequently also consciousness returns.

The demand for cheaper gas on the part of the public, and the rise in the cost of crude petroleum, the introduction of the mantle burner, the increased use of gas for cooking and heating purposes, have inevitably resulted in an increased number of fatalities from illuminating gas asphyxiation. For those cases which can be reached in time the treatment above indicated will, it is our belief, not only increase the chances of survival, but also the probability of complete recovery and freedom from the distressing sequelae sometimes associated with poisoning by illuminating gas, or the exhaust gas of automobiles.

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RUPTURE OF OVARY WITH MASSIVE HEMORRHAGE AS A COMPLICATION OF AN ACUTE APPENDICITIS.

REPORT OF A CASE, WITH REVIEW OF THE LITERATURE.

BY HENRY S. PENN, M.D., LAWRENCE, MASS.

RUPTURE of an ovary with hemorrhage of various degrees may occur entirely independent of ectopic pregnancy. Such accidents are not only possible but are of much more common occurrence than we naturally imagine. The voluminous literature on the subject testifies to that effect. The possibility of serious hemorrhage was pointed out as early as 1851 by Nelaton,¹ Rokitsky¹ in 1855, and Pench⁴ in 1858, the latter calling it "ovarian apoplexy."

In addition, a number of cases were reported by Wilson,² who states that "there is a case on record of a woman who died from a shock on the eve of her marriage, as a result of a profuse intraperitoneal hemorrhage from a ruptured corpus luteum"; and similar papers by Hollins, Hind, Penny,³ Richard R. Smith,⁷ and a host of others. Schumann,³ in his recent review, brings the subject up to date.

The extent of the hemorrhage may naturally vary from a small amount up to a fatal exsanguination, as in the case reported by Pench, where three pints of blood were lost.

The etiology of a purely ovarian hemorrhage is so far entirely hypothetical.

Jaile⁵ claims that rupture of small cysts of the ovary is a frequent cause of blood in the pelvis.

Schambacker⁵ found that hemorrhage was often due to rupture of utero-ovarian plexus of veins.

According to Primrose,¹ a sudden strain, a sudden rise in intra-abdominal pressure, especially if this happens a few days before or during the menstrual period, may act as the cause of the accident.

Novack³ maintains that the original site of Graafian follicle hemorrhage is the perifollicular stroma, and that it only later breaks into the follicle, and "in certain cases . . . the hemorrhage is of the perforative type, the blood breaking through the surface of the ovary, causing an abdominal hemorrhage" (Abstract of discussion, *Journal A. M. A.*, Vol. 77, page 695).

Richard R. Smith⁷ thinks that the cases of acute hemorrhage from a ruptured Graafian follicle or corpus luteum should be grouped by themselves, because they are apparently not caused by any pathological condition of the ovary or pelvic organs.

Schumann,³ on the other hand, points out that when a massive hemorrhage occurs from an ovary there is usually to be found some pathological process of the ovarian blood-ves-

sels present. This deduction is based on a case where the microscopic examination of the ovary did show degenerative fibrous changes of the blood-vessels.

In the author's case the hypotheses of Primrose and Novack seem to be well sustained, and as far as the literature could be traced this is the second case on record where an acute appendicitis was complicated by a ruptured ovary with massive hemorrhage. The first and almost identical case was reported by Primrose.¹

A preoperative diagnosis of this condition, while theoretically possible, is in reality a very difficult problem, especially in the presence of acute abdominal condition, as this case happens to be. However, two vital points are of practical importance in the diagnosis: First, early recognition of the hemorrhage and immediate operation; and second, to quote Bovee,⁴ "that from the personal as well as from the medical legal standpoint, a diagnosis of ectopic pregnancy should not be made in cases in which pregnancy should not exist" (Bovee quoted by Schumann³).

CASE HISTORY.

Present Illness.—Woman, age 20, married one month. Has always been well except for an occasional pain in the right side. The present attack began about five hours ago, with severe abdominal pain and persistent vomiting.

Physical Examination.—Pulse, 120. Temperature, 100°. There was marked tenderness and spasm over the right lower quadrant, otherwise negative. White count, 14,000. Vaginal examination disclosed nothing abnormal. A diagnosis of acute appendicitis was made and operation advised, which was refused. About 3 o'clock in the morning, next day, a hurried call was sent and patient was found in bed, pale, weak, with a feeble and thready pulse and in almost complete shock. She complained of a great deal of pain, headache and dizziness. Abdomen was somewhat distended, pain all over, but more so over the right lower quadrant. Temperature, 100°. Pulse, 136-140.

Operation.—Right rectus incision. Free and clotted blood escaped upon opening the peritoneum. Bleeding seemed to come from pelvis. Appendix found markedly injected and kinked. Incision enlarged downward and uterus brought into view. Right ovary found to be the source of hemorrhage. It was normal in size, somewhat twisted on its pedicle, and presented a ruptured Graafian follicle, from which active bleeding took place. Ovary and tube were removed, also the appendix. Abdomen cleansed of blood, which amounted to about 11 to 12 ounces. Small rubber drain inserted and wound closed in the usual manner. Patient made an uneventful recovery.

Conclusion.—Apparently in this case, like in the one reported by Primrose, the hemorrhage was due to the increased intra-abdominal pressure brought about by the persistent vomiting. It is also worth noting that the patient's menstrual period took place a day after the operation.

Pathological Report.—Received ovary, tube and appendix. Tube is slightly thickened, dark red in color, and shows fibrous serosal adhesions. The ovary is pale, normal in size, and shows an area of rupture on surface communicating with small cavities, which can be stretched open to a distance of 1 cm. The appendix measures 7 cm., pale, with fibrous thickened wall and dilatation of the terminal one-half of the lumen.

Microscopic examination of ovary shows luteal tissue and area of hemorrhage; probable source of intraperitoneal hemorrhage. Fallopian tube shows extreme congestion of vessels, with slight infiltration of wall with polymorphonuclear leucocytes. The mucosa shows no pathological change.

Diagnosis.—Corpus luteum and hemorrhagicum. Acute congestion of tube. Chronic fibrous appendicitis. (Pathological Department, Tufts Medical School.)

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POSTERIOR RESECTION OF THE RECTUM AND RECTOSIGMOID (KRASKE OR MODIFIED UNDER REGIONAL ANESTHESIA).

LABAT, G. L. (*Johns Hopkins Hospital Bulletin*, April, 1922), discusses his method of performing the operation for resection of the rectum under local anesthesia, recapitulating as follows:

1. The choice of the method of anesthesia is one of the most interesting problems connected with the surgery of the rectum and rectosigmoid.
2. Most of the postoperative complications may be attributed to inhalation narcosis, especially ether, and

can be avoided or considerably lessened by the use of regional anesthesia.

3. Regional anesthesia does not increase the resistance of the patient, but leaves the vital functions of the body in the same condition.

4. The anesthesia does not prevent pulmonary embolism, but excludes the danger of pulmonary post-operative complications, provided no acute condition exists at the time of the operation.

5. The anesthesia has no ill-effects on the gastrointestinal tract; thus the possibility of paralytic ileus and the tendency toward hemorrhage are reduced.

6. All patients are amenable to the method, but one should be cautioned against borderline cases.

7. Previous conditions, such as chronic lesions of the heart, with or without compensation, high blood pressure, pulmonary tuberculosis, diabetes, at least mild and chronic, easily controlled by dietary measures, and chronic renal conditions do not seem to interfere with the operative prognosis.

8. The use of morphin and scopolamin controls the psychic state of the patient and greatly contributes in establishing favorable conditions during the operation; but the stage of twilight sleep must not be reached.

9. With the abdominal field block procedure, colostomy is performed painlessly, provided the patient is not too obese and the mesocolon is not too short. Exploration is possible in the majority of cases, if gentleness is used.

10. The sacral block, consisting of the caudal or epidural and trans-sacral block, added to the paravertebral block of the last three lumbar nerves on both sides, constitutes the method of choice for the posterior resection of the carcinomatous rectum and rectosigmoid.

11. The administration of the anesthesia is not difficult, but it requires practice and patience, irrespective of the gentleness which must always be used in handling conscious patients.

12. If the anesthetic does not give complete anesthesia throughout the operation, the administration of a first stage ether anesthesia during the deep manipulations constitutes a combined method much safer than general narcosis alone.

[J. B. H.]

CHANGES IN THE MORPHOLOGY AND FUNCTION OF THE BONE MARROW AFTER SPLENECTOMY.

JOHNSTONE, ERNEST M. (*Archives of Surgery*, July, 1922) presents a profusely illustrated article on this subject and draws the following conclusions:

My conclusions regarding marrow changes after removal of the spleen are based on a series of experimental studies of twenty dogs, forty rabbits, and two goats during a period of approximately two years.

The new method of marrow study which I devised for this series of experiments consists of five essential features: (1) a rib marrow specimen removed before splenectomy is used as a control for a series of subsequent specimens removed at intervals after splenectomy. (2) Series of similar rib marrow specimens from normal nonsplenectomized dogs furnish an additional control for the experiments. (3) Rib marrow specimens removed at frequent intervals after splenectomy give a connected picture of marrow changes. (4) The observations on the marrow are correlated with parallel observations on the blood and on the general condition of the animal. (5) Ether anesthesia and cocaine anesthesia are used in separate series of experiments in order to test the influence of the anesthetic on the marrow.

Removal of the spleen of a normal animal is followed by definite hyperplasia and hypertrophy of the marrow. The most constant and the most important change in the marrow is an increased production of red blood cells which is clearly observable, on the average, within four weeks after splenectomy and

which gradually increases to the maximum about the end of the twelfth week. This maximum degree of activity persists for about twelve weeks and then gradually subsides. Increased production of the white blood cells is sometimes spectacular; it occurs almost immediately after splenectomy, but it is not only inconstant, but also temporary.

The reaction of the erythropoiesis in the bone marrow clearly is independent of any of the anesthetics used. The series of experiments is too small for conclusive findings with regard to the effect of the anesthetics on leukogenesis.

The marrow reaction which follows splenectomy probably is secondary and compensatory to the anemia which follows removal of the normal spleen, thus representing a physiologic response to a demand for more blood cells. It may have no direct relation to the absence of the spleen. The persistence of this marrow reaction, which far exceeds the duration of postsplenectomy anemia, may likewise be an expression of the law of regeneration in excess.

[E. H. R.]

VALUE OF BLOOD PRESSURE IN ACUTE CEREBRAL COMPRESSION.

MALONE, J. Y. (*Annals of Surgery*, June, 1922) writes as follows:

Medullary compensation following increased intracranial pressure is a constant phenomenon experimentally when the anesthesia is not deep enough to block the corneal reflex or the reaction of the pupil to light, but is absent when the anesthesia is deep.

The depressor fibres in the vagus inhibit the rise of blood pressure following increased intracranial pressure.

Clinically, blood-pressure compensation following increased intracranial pressure is a valuable criterion of the degree of cerebral compression when the pupils react to light, but is of no service when they do not.

A sluggish or absent reaction of the pupils to light indicates a grave prognosis and no time should be lost in relieving the cerebral compression.

It has been an almost invariable rule, however, on the Neuro-surgical Service not to decompress a patient if the blood-pressure is falling or is below normal. This has been taken as evidence that the last stage of compression has been reached and that the medullary centres are exhausted and can no longer compensate.

[E. H. R.]

EXTRACRANIAL ANEURISM OF THE INTERNAL CAROTID.

WINSLOW, N. (*Annals of Surgery*, June, 1922) writes as follows:

Aneurism of the cervical portion of the internal carotid artery is not as infrequent as supposed.

Before incising a unilateral lump in the neighborhood of the tonsil, especially if of long standing, look, feel, listen.

Spontaneous cure may occur, but the usual termination in untreated cases is death from rupture into the fauces.

The operation of choice is occlusion of the internal carotid proximal to the sac. If this be impossible then ligation of the common carotid artery, together with a ligation of the external carotid, between its origin and first branch. If the external carotid be tied distal to a branch, that branch must likewise be occluded.

After ligation the prognosis is fair both as regards operative recovery and permanent cure.

Aneurism in other localities is by far more prevalent in the male than in the female; in the internal carotid it occurs in almost an equal ratio in the two

sexes, being slightly more prevalent in the male if all types are considered, but much more frequent in the female in the spontaneous variety.

[E. H. R.]

THE SERUM TREATMENT OF ANTHRAX SEPTICAEMIA.

SYMMERS, D. (*Annals of Surgery*, June, 1922) writes as follows:

Every anthrax lesion of the skin or elsewhere should be tentatively regarded as attended by generalized infection until the result of the blood culture proves the contrary.

In no circumstances is it justifiable to tamper with the anthrax pustule—incision, excision, cauterization, or similar treatment is dangerous, and may be followed by anthrax septicaemia. The only permissible form of local treatment consists in the injection at the periphery of the pustule of broken doses of anti-anthrax serum at intervals of four to six hours, each injection not to exceed a total of ten or fifteen c. c. Failing this, it is better to cover the lesion with a bit of sterile gauze to collect the secretions, but otherwise to leave it absolutely alone.

The most dependable routine method in the treatment of the anthrax pustule is, first, to isolate it within a barrier of anti-anthrax serum subcutaneously injected every four hours; second, to inject intravenously, at once, a sterilizing dose of one hundred and fifty or two hundred c. c. of serum, and, third, to supplement this by the intravenous injection of forty c. c. every four or eight hours. If the blood culture is negative at the end of twenty-four hours, the intravenous use of serum may be discontinued, the local injections being kept up until the pustule is free from bacilli, or at least until involution forms occur in the stained films. In anthrax septicaemia, the liberal use of anti-anthrax serum intravenously, if commenced in time, is capable in many instances of sterilizing the blood with astonishing rapidity, and, in septicæmic cases, the routine just outlined may be followed until the blood cultures are negative.

[E. H. R.]

ANOTHER CASE OF BULLET WOUND OF THE FEMORAL ARTERY AND VEIN SUCCESSFULLY TREATED BY LIGATION OF THE ARTERY AND VEIN AND EXTIRPATION OF THE INJURED SEGMENT.

LARQUE, G. P. (*Annals of Surgery*, June, 1922) writes as follows:

When one studies the broad principles involved in the treatment of the immediate and remote effects of injuries of large blood-vessels and the results of isolated and collected cases treated in different ways throughout the world, one can scarcely escape the conviction that for arteriovenous lesions of the external iliac or femoral vessels the proper treatment consists of aseptic excision of the wound and lesion and all that this implies; in other words, ligation of the artery and vein above and below, and extirpation of the involved segment. The large number of cases of arteriovenous fistula on record and the monumental contributions of that great truth finder, W. S. Halstead, leave little room for doubt that this is the proper treatment for arteriovenous wounds of this character and location and for arteriovenous aneurism or fistula.

[E. H. R.]

SPONTANEOUS LATERAL VENTRAL HERNIA.

HOLLOWAY, J. K. (*Annals of Surgery*, June, 1922). The author defines the lesion, reports a case with operation, and gives a brief historical sketch, speaks

of the etiology, and the pathological anatomy and diagnosis. He gives a chart showing the results in seventeen cases. This is an obscure condition and the article is timely in pointing out its rather rare occurrence.

[E. H. R.]

SPIRAL FRACTURE OF THE TIBIA AND FIBULA.

CALDWELL, JOHN A. (*Annals of Surgery*, June, 1922) believes that the Parham band is an ideal method by which to hold these difficult fractures. He reports ten cases. His arguments are convincing.

[E. H. R.]

PERITONITIS AS A COMPLICATION OF PROSTATECTOMY.

VANDER BERG, HENRY J., and BUTLER, W. J. (*Annals of Surgery*, June, 1922) call attention to the rather infrequent occurrence of peritonitis following the supra-pubic operation for prostatectomy, but also emphasize its possibility and report a case.

[E. H. R.]

SCIATIC HERNIA.

SUMMERS, J. E. (*Annals of Surgery*, June, 1922) gives a very good historical though brief review of the literature on this subject and illustrates his article with some very excellent anatomical drawings and photographs of a patient operated on, and reports the operation in detail. The article is of considerable value.

[E. H. R.]

AN IMPROVED METHOD OF SKIN GRAFTING.

PARCE, A. D. (*Annals of Surgery*, June, 1922), after a considerable experience with war injuries, has devised a rather unique method of applying skin grafts. He uses a sterile dental composition as a mould, makes an exactly fitting outline and mould of the area to be grafted, with this pliable material. After it has hardened, he covers the under surface of his mould with an ordinary Tiersch graft, holding it in place by several catgut sutures over the top of the mould. The area to be grafted is properly prepared and the edges of the area slightly undermined so that the material with its flat graft fits snugly, a few interrupted catgut sutures hold the material in place, sufficient pressure is applied for 6 to 10 days to prevent the accumulation of any serum which would tend to raise the graft from its bed.

The article contains several very excellent illustrations of the technic and the results.

[E. H. R.]

FILIARIASIS IN PANAMA.

McFARLAND (*American Journal of Tropical Medicine*, Vol. No. 3, May, 1922) reports the finding of microfilaria in 34 out of 1124 persons examined. None of the individuals harboring the parasites showed any symptoms or lesions recognized as referable to its presence. About half of the cases were in hospital for other conditions, and the remainder were presumably healthy laborers.

The writer says that the ordinary methods of staining the organism proved unsatisfactory in his hands, but that a saturated alcoholic solution of methylene blue gave excellent results. He worked with thick smears laked in tap-water.

[G. C. S.]

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THE RELATION OF FOCAL INFECTIONS TO MENTAL DISEASE.

THE question as to the exact relationship between focal infections and mental disease is one that is attracting considerable attention and discussion at the present time. There are those who feel that focal infection is the long looked for explanation of dementia praecox and manic depressive insanity, and that proper therapy directed against this cause will produce a very high percentage of cures. Perhaps the most vigorous advocate of this view is Dr. Henry A. Cotton, Medical Director of the Trenton State Hospital, New Jersey. According to Cotton,¹ "Psychoses arise from a combination of many factors, some of which may be absent, but the most constant is an intracerebral, bio-chemical, cellular disturbance arising from circulating toxins, originating in chronic focal infections situated anywhere throughout the body and probably to some extent in disturbances of the endocrine system." The principal organisms which produce these focal infections are the streptococcus (both hemolytic and non-hemolytic types, the staphylococcus, and colon bacillus. The primary foci of infection are the teeth, tonsils, gastro-intestinal and genito-urinary tracts. The treatment consists in the operative removal of infected teeth, tonsils, and other organs, in the use of autogenous vaccines and

a serum immunized to streptococci and colon bacilli.

Under such a system of therapy, it is stated that, in the last three years, over one thousand patients of the so-called "incurable" group have been discharged and that the discharge rate for the "functional" group has been raised from thirty-seven per cent. to between sixty-five and seventy per cent.

It is unfortunate that but little work has been done to prove or disprove Cotton's results. We must confess with shame that almost none of our State hospitals has the equipment, the physicians or the money to undertake such a piece of work. Perhaps the publicity given the whole subject will result in an aroused public opinion which will demand and secure adequate facilities for our hospitals for mental diseases.

There have, however, been three pieces of work to which it might be well to call attention. The Report of the Research Committee financed by the Michigan State Dental Society² maintains that all previous work on bacterial cultures from teeth have necessarily given unreliable reports due to inevitable contamination. Using a perfected technique, it was found that thirty-three per cent. of pulpless teeth in cases of myocarditis, nephritis, arthritis or neuritis gave negative cultures. It was also held that if properly treated, a non-vital tooth may remain uninfected for years.

Kopeloff³ has made a very careful study of the gastric contents both as to chemical analysis and bacterial content. Briefly, he found that single determinations of gastric acidity by the Rehfuess fractional method are unreliable, that there was no correlation between degree of acidity and number or type of bacteria present, that the swallowed saliva markedly impaired the value of bacterial examinations and that aliquot fractions do not accurately represent the total gastric contents. He concludes that the Rehfuess method is not a valid procedure with which to establish the stomach as a focus of infection and an etiological factor in the functional psychoses.

Cheney⁴ carried through two series of cases, one group having all foci of infection removed and the other group having no attention paid to such foci. He was unable to show any marked difference in recovery rate between the two groups.

The relation of the focal infections to mental disease is still unknown. The reports of various workers are conflicting. Perhaps the situation can best be summed up by quoting from Adolph Meyer's foreword in Cotton's "The Defective, Delinquent and Insane." "If these lectures stimulate physicians and laymen to furnish means for extensive, well controlled trials, I shall feel that the somewhat extreme claims which go beyond what I personally believe to be my experience, may find their excuse in good

results. Let the best agencies come together and give the best talent, the best opportunities for work from all sides. Let criticism be constructive and not only restrictive."

REFERENCES.

- 1 Cotton, H. A.: *The Defective, Delinquent and Insane.*
- 2 Rickert, V. G. and Lyons, C. J.: *Jour. Nat. Dental Ass'n.* 9:500—1922.
- 3 Kopeloff, N.: *The Fractional Method of Gastric Analysis as Applied to the Psychoses.*
- 4 Cheney, C. O.: *Am. Psychiatric Ass'n.* May, 1922.

THE SHEPPARD-TOWNER ACT.

THE Children's Bureau has approved the plans of thirty-six states for the administration of this law. Forty-two states have accepted the act. Although up to July 14 the Louisiana Legislature was still in session, no action had been taken in that state. The Louisiana Senate Committee on Health and Quarantine reported unfavorably on the bill to accept the Federal Act. New York and Rhode Island have taken the same attitude as Massachusetts.

H. M. Towner, one of the authors of the original bill, has rendered an opinion on the constitutionality of the act. This seems to be a reply to the opinion given by Attorney-General Allen. Judge Towner argues that the law is constitutional under Article 1, Section 8, of the Federal Constitution, which gives to Congress the power "to lay and collect taxes, duties, imports and excises, to pay debts and provide for the common defense and general welfare of the United States." His reasoning is based on the preamble and on many classic works relating to the Constitution and the interpretations set forth by various speakers and writers in dealing with the provision embodied in the words, "general welfare." It is his opinion that these words justify an existence of the Public Health Service and he claims that if this part of the Constitution cannot be interpreted to make legal provision for the Sheppard-Towner Act, then some other national activities are operating without legal authority.

As types of legislation which may be construed as valuable precedents, he refers to the land grant college appropriations, the Smith-Lever Act of 1914 for instruction in agriculture, the Smith-Hughes Act of 1917 for vocational education, and the Federal grants for highway construction.

It would be futile for an unprofessional critic to attempt to make any logical argument relating to a constitutional question, but a layman may justly feel that in the presence of differences of opinion, expressed by recognized exponents of law, those states which have decided to wait for the opinion of the Supreme Court have adopted the sane course.

There are in operation throughout this country at the present time certain customs which have been adopted for the purpose of meeting

the wishes of some people, about which there is the shadow of suspicion that, if the highest courts should be asked for opinions as to the legality of acts adopted by state legislatures authorizing these customs, some enacted laws may be found to be unconstitutional. It should be kept in mind that no law is really established until it has been contested and been passed upon by the Supreme Court. Massachusetts, through her Attorney-General, has assumed leadership in a movement which will determine the standing of the Sheppard-Towner Act. When the decision of the Supreme Court shall have been rendered the whole country will be under obligation to the Bay State. If constitutional, then the way is clear for those states which believe in the policy of Federal bounties to states to be applied under Federal approval, to unite with the government in carrying on state activities.

RESPONSIBILITY FOR THE ENFORCEMENT OF LAW.

IN the July 13, 1922, edition of the JOURNAL an article dealing with the history and psychology of quackery, by Robert W. Lovett, was published. It was a strong presentation of facts and a logical analysis of human weaknesses. The older men in the profession could give testimony confirmatory of the tendencies of many of the people to apply to the ignorant pretender for relief from physical ills. The men who have entered upon the practice of medicine since 1900 can hardly realize the earlier extent of these foolish customs. For the itinerant quack has almost universally gone to his reward, and the number of poorly equipped practitioners has steadily decreased. But even though conditions have improved in some respects we have new problems presented in the development of the evils which call for solution. In all the states efforts are being made to regulate the irregulars and protect the people from inadequate or improper service. These efforts are of two kinds, one designed to provide for better qualified physicians, and the other to inhibit or eliminate the pretender who blatantly advertises his methods as cure-alls.

Laws relating to the control of medical practice have been formulated to meet conditions as they appeared from time to time, and have been productive of good so far as they have been enforced and upheld, but in some instances have been found to be more or less obnoxious because occasionally, in their application, a well intentioned but poorly informed physician has unwittingly been annoyed by the exaction imposed.

It may be necessary to have at some convenient time a survey of the laws enacted by this State for the purpose of ascertaining which ones should be retained and which discarded, for even among intelligent and honorable men there are

differences of opinion. As examples, the law relating to the association of a registered physician with one not entitled to practice, and the status of the unregistered associate with the legally qualified doctor might be discussed. Also, the law relating to the practice of obstetrics. In illustration of the difficulties encountered under the example first mentioned—a practitioner recently sent a medical student to attend a case which he, the registered man, had not seen. The student failed to appreciate the gravity of the case and the family secured the services of another physician who found the patient suffering from a dangerous disease and sent the case into a hospital. Death supervened in a few hours. The circumstances were reported to the police. The doctor who sent the student was disciplined by the Board of Registration in Medicine and complaint against the student made to the prosecuting authorities. There appears to be some evidence tending to show that prominent and influential physicians have felt that the registered physician and the student should have been dealt with more leniently.

This same tendency to interfere in the application of the law has been shown in the testimony submitted by a physician in good standing when several midwives were being prosecuted by the State police. This physician testified, as an expert, that the practice of midwifery is not the practice of medicine, and on the strength of this medical opinion the judge found the defendants not guilty. In a subsequent trial before a jury the same physician repeated his testimony and, although it was shown in the evidence that one of the midwives had advertised as such for many years and at the time of the birth of a child had applied drops to its eyes, some of the jury were so impressed by the physician's opinion that a disagreement resulted.

These alleged facts seem to demand some action by the profession, for it is disconcerting for officers of the law to find that their efforts at enforcement do not meet the approval of physicians. Either these laws should be enforced or they should be stricken from the statutes. Unfortunately, the State cannot appeal from an adverse decision by a judge or a jury, and although the Supreme Court has upheld our medical laws in every instance when appeals have been carried thus far, serious obstacles seem to be encountered in the antagonism of our own members.

We are united in our opposition to the cults; should we not carry reforms within our own ranks so far as the laws may be made effective? Will the State Society act to either change the laws or to exert its influence for enforcement of them?

DENATURED ALCOHOL.

THE Internal Revenue Commission has authorized the use of the following formula by visit-

ing nursing associations, public nursing associations, clinics and dispensaries which are of semi-public character and engaged in charitable work:

Ethyl alcohol, one hundred gallons, to which is added twenty-five fluid ounces of phenol U.S.P., four fluid ounces of oil of wintergreen or methyl salicylate U.S.P.

This is a reasonable concession, but alcoholic preparations are still unduly expensive. There should be some way provided by which the legitimate use of alcohol might be secured at true cost. Alcohol is not expensive to manufacture and the price is much more than should be required of hospitals and laboratories devoted to scientific operations which have no commercial purpose.

THE EXAMINATION OF FOOD HANDLERS.

ALTHOUGH the Department of Health of New York City has carried on some work relating to the health of food handlers, it is stated that less than ten per cent. of these people are examined for the purpose of ascertaining whether such persons are suitable ones to be distributing food. Of this small number examined less than one-fourth are examined by physicians employed by the health department. Even with this inadequate investigation seven typhoid carriers have been discovered in the past seven years, or on the average, one a year. If the proportions of typhoid carriers in the other more than 90 per cent. is approximately that found in the examined class, there would be about nine typhoid carriers handling food-stuffs. This may not seem a large number, but as possible foci of infection many cases might result from these sources.

NEWS ITEMS.

JOKICHI TAKAMINE.—The death of this eminent chemist occurred in New York, July 22, 1922. Dr. Takamine was born in 1854, and had been living in Passaic, New Jersey, for several years. He is credited with the discovery of adrenalin in 1900, and takadiastase in 1894. His education was secured in Japan and Glasgow. He was chemist to the Japanese Department of Agriculture and Commerce when he achieved distinction. Most of the time since 1890 he had lived in this country and was deeply interested in promoting amicable relations between this country and Japan. He was a member of many scientific and social organizations.

THE PUBLIC HEALTH INSTITUTE OF CHICAGO FINANCES A COÖPERATIVE RESEARCH.—The Public Health Institute of Chicago has undertaken

to finance the coöperative research between the University of Wisconsin Medical School and the Chemical Department of Northwestern University, which in the past has been supported by appropriations from the United States Inter-departmental Social Hygiene Board. This research which has been devoted to attempts to improve the treatment of syphilis of the central nervous system has been directed by Dr. W. Lee Lewis and Dr. Frank C. Whitmore of Northwestern University, and Dr. A. S. Loevenhart and Dr. W. F. Lorenz, of the University of Wisconsin. The Public Health Institute has appropriated \$21,600 to both universities for the coming year.

THE LAWRENCE MEMORIAL HOSPITAL.—By the bequests of Daniel W. Lawrence, Roswell B. Lawrence, and the gift of a site by Mrs. Carolyn R. Lawrence, Medford is to be provided with a modern hospital. The contracts have been awarded and the work has been begun. The design is by Charles B. Dunham with Stevens & Lee consulting architects. The general character of the building is of modified Georgian type. The dimensions are 148 by 125 feet, two stories, with a third story over a portion of the center for the operating department. The general scheme provides for such future additions as may be needed for a large city. In addition to the equipment for general medical and surgical services, there will be a maternity department with a children's ward. It is claimed that this is the first hospital in New England which is equipped with rubber tile and ceilings especially treated to absorb noises and insure silence. All the arrangements and equipment are of modern design and when completed this hospital will be a model to be studied.

FEDERAL SOCIAL HYGIENE BOARD.—The inter-departmental Social Hygiene Board has passed out of existence and a bill has been introduced in Congress authorizing the Department of Justice to take over the work formerly conducted by this board. Surgeon-General of the Army M. H. Ireland, Surgeon-General of United States Public Health Service Hugh S. Cummings, and others, recommended this change. It is felt that the Department of Justice, coöperating with State and local health officials, can deal with the questions pertaining to prostitution and venereal diseases.

MEETING OF THE BARNSTABLE DISTRICT MEDICAL SOCIETY.—On August 4, 1922, this society will meet at the Barnstable County Infirmary at Pocomsett. This meeting is arranged especially for social as well as professional entertainment, and is called under the title of "Ladies' Day." All physicians, whether members of the society or not, are invited to attend with their wives.

WINTHROP COMMUNITY HOSPITAL.—Mention has been made in the public press of the closing of the Metcalf Hospital in Winthrop. The geographical location of Winthrop seems to demand a local hospital, for the transportation of emergency cases to metropolitan hospitals would entail inconvenience and suffering. The nearest accessible institution is the Chelsea Memorial Hospital, which is often taxed to its capacity. The inability of Dr. Metcalf to carry on his hospital because of impaired health has led prominent citizens and the physicians of Winthrop to inaugurate a campaign for funds by which hospital service can be maintained and extended. The only other place where medical service can be dispensed, aside from that provided by private physicians, is the Health Department Dispensary. An executive committee, consisting of Mr. G. Wallace Tibbetts (chairman), Dr. Frederiek G. Dews, Messrs. Preston B. Churchill, Eugene P. Whittier, Charles R. Bension, Albert S. Smith, William H. Gardner, A. W. Belcher, T. W. Berridge, J. S. Carr, Thos. Davidson, R. A. Lang, A. B. Reade and Israel Sisson have the matter in charge. Dr. Bernard W. Carey is acting in an advisory capacity in addition to the physicians of the city. The drive for funds has taken the form of a stock-selling campaign. About \$5,570.00 worth of stock (non-dividend paying) have been sold. There is a possible fund of \$20,000 subscribed under a previous drive conducted last spring. The plan is to purchase the Metcalf Hospital and enlarge it to thirty beds' capacity with all necessary equipment. This will be regarded as a temporary plant to be used until a more permanent hospital may be built with the expectation of converting it into money and applying the proceeds to the erection of a modern hospital whenever sufficient funds may be available.

WEEK'S DEATH RATE IN BOSTON.—During the week ending July 22, the number of deaths reported was 174 against 166 last year, with a rate of 11.87. There were 29 deaths under one year of age against 28 last year. The number of cases of principal reportable diseases were: diphtheria, 36; scarlet-fever, 20; measles, 58; whooping-cough, 34; typhoid-fever, 3; tuberculosis, 42. Included in the above were the following cases of non-residents: diphtheria, 1; scarlet-fever, 3; whooping-cough, 1; typhoid-fever, 2; tuberculosis, 3. Total deaths from these diseases were: diphtheria, 1; measles, 2; tuberculosis, 13. Included in the above were the following cases of non-residents: tuberculosis, 2.

Dr. GEORGE MONROE PALMER of Lynn died suddenly at Floating Bridge Pond in that city, July 27, 1922, at the age of fifty-nine.

He was born in Rochester, N. H., in 1863, graduated from Harvard Medical School in the

class of 1892, joined the Massachusetts Medical Society, in the same year and settled in practice in Boston. His interest was in internal medicine and in chemistry. Following 1908 he lived successively in Cambridge, Watertown and Belmont, moving to Lynn in 1919. Later he was employed in the chemical laboratories at the State House. He is survived by a widow and a son.

Miscellany.

LEGISLATIVE MATTER.

MENTAL HYGIENE.

THIS act passed in the later sessions of the Legislature is supplementary to the letter of Dr. L. Vernon Briggs in the issue of July 27:

CHAP. 519.

AN ACT ESTABLISHING THE DIVISION OF MENTAL HYGIENE IN THE DEPARTMENT OF MENTAL DISEASES.

Be it enacted, etc., as follows:

SECTION 1. Chapter nineteen of the General Laws is hereby amended by inserting after section four the following new section:—Section 4A. There shall be in the department a division of mental hygiene, under the supervision of a director. The commissioner, with the approval of the governor and council, may employ such expert assistance to serve in said division as may be necessary.

SECTION 2. Chapter one hundred and twenty-three of the General Laws is hereby amended by inserting after section three the following new section:—Section 3A. The department shall take cognizance of all matters affecting the mental health of the citizens of the commonwealth, and shall make investigations and inquiries relative to all causes and conditions that tend to jeopardize said health, and the causes of mental disease, feeble-mindedness and epilepsy, and the effects of employments, conditions and circumstances on mental health, including the effect thereon of the use of drugs, liquors and stimulants. It shall collect and disseminate such information relating thereto as it considers proper for diffusion among the people, and shall define what physical ailments, habits and conditions surrounding employment are to be deemed dangerous to mental health.

SECTION 3. Said chapter one hundred and twenty-three is hereby further amended by inserting after section thirteen the following new section:—Section 13A. Such of the powers and duties conferred or imposed upon the department, relating to the cause and prevention of mental disease, feeble-mindedness, epilepsy and other conditions of abnormal mentality, as the commissioner may determine may be exer-

cised and performed by the division of mental hygiene. In addition to said powers and duties, said division shall institute inquiries and investigations for the purpose of ascertaining the causes of mental disease, including epilepsy and feeble-mindedness, with a view to its prevention. It may also establish, foster and develop out-patient clinics. (Approved June 8, 1922.)

POST-OPERATIVE COMPLICATIONS OF THE RESPIRATORY TRACT.

DR. H. RYERSON DECKER, F.A.C.S., of Pittsburgh, Pa., says in *Current Research in Anesthesia and Analgesia* "that complications of the respiratory tract develop after operation with greater frequency and more serious consequences than most surgeons and anaesthetists appreciate. No clinics and no clinicians are immune, especially if they make careful observations and keep accurate records. Collected figures that are reliable, such as given in Table 1, show that on the average one case in every forty-five operated upon develop a respiratory tract lesion and that one case in every two hundred dies from this complication.

TABLE 1.

	Operations.	Morbidity.	Mortality.	Morbidity Per Cent.	Mortality Per Cent.	Morbidity Per Cent.	Mortality Per Cent.
Cutler & Morton, Mass. Gen'l.	3,490	65	1.8	33	94	50.7	
Armstrong, Montreal Gen'l.	2,560	55	2.2	32	1.23	58.1	
Mayo Clinic	16,317	220	1.32	15	.11	9.6	
Von Lichtenberg	23,673	440	1.9	11	0.7		
Cutler & Hunt, Peter Brgs.	1,562	55	3.52	11	0.7		
Decker, Pittsburgh, 1920	5,976	69	1.2	29	0.5	42	
Decker, Pittsburgh, 1921	2,125	16	0.7	6	0.3	37.5	

"Last year I reviewed a series of 5,976 cases operated upon consecutively in the surgical services at St. Francis Hospital and my own at Presbyterian Hospital, Pittsburgh, in which series the morbidity was 1.2 per cent., and mortality 0.5 per cent., both comparatively low figures, as seen by Table 1. However, one should make due allowance for statistics. In our series we excluded minor cases which had no anaesthetic or remained in the hospital less than two days, cases of primary surgical respiratory tract disease, *e.g.*, suppurative pleurisy, in which respiratory tract complications are to be expected, cystoscopic examinations, and finally nose and throat cases, *e.g.*, tonsillectomies for which the patients remain in the hospital so short a time, that records of the post-operative course are not available. Nor in our report did we take cognizance of the milder respiratory tract complications, such as coryza, pharyngitis, and tonsillitis, inasmuch as they involved no serious consequence to the patient, and, furthermore, were incompletely recorded.

"In the last sixteen months, from January 1,

1920, to May, 1921, we have extended our observations, and now report a review of 2,125 cases from the same sources as in our previous study (the surgical services of R. T. Miller, Mercy Hospital, R. R. Huggins, B. Z. Cashman, W. O. Sherman, and E. W. Meredith at St. Francis Hospital, and my own at the Presbyterian), and with an even lower morbidity and mortality of 0.7 per cent. and .03 per cent. respectively, as seen by Table 1.

The morbidity by disease is shown in

TABLE 2.

	1920	1921
Lobar Pneumonia	45	8
Broncho-Pneumonia	7	6
Bronchitis	7	2
Pleurisy:		
Dry	7	1
Sero-fibrinous	2	..
Empyema	1	..
Pulmonary Embolism	2	..
Pulmonary Abscess	0	1
	71	18
No. of Patients.....	69	16

"The series shows the usual preponderance of pneumonia, this time nearly equally distributed between the lobar and lobular types. This corresponds more nearly to the findings in other clinics although Cutler, in 1600 cases at the Peter Bent Brigham Hospital this last year, has found only one case which he has called lobar pneumonia.

"It is beyond the limits of this paper to enter into a full discussion of the clinical course of the post-operative respiratory tract complications, so we shall present only a brief summary of some of the important features as we have observed them, in order that we may more fully consider what to us is of more practical import, their etiology and treatment.

"Pneumonia is by far the most frequent and serious complication, in our series, being responsible for 75 per cent. of complications and 90 per cent. of the mortality. Autopsy reports are scarce, but those published show that there may be every known type of pathology, including lobar, lobular (broncho), embolic (infarction), gangrenous, hypostatic, and, lastly, a type important and frequent, which corresponds to a type of non-surgical pneumonia called by the French School, *maladie de Woillez*, and indeed resembles closely, as we have seen it, the gross appearance of *influenzal pneumonia*."

The writer then proceeds to give the clinical and pathological features of each complication.

This is an important summary of the dangers of anaesthesia and to the occasional etherizer is of especial value in so far as it may lead to recognition of well known dangers which may not have been observed by a recent graduate who under force of circumstance may be called upon to administer anaesthetics. Since these

accidents occur in the cases cared for by trained men the facts should be made known to friends of patients.

APPROPRIATIONS FOR PUBLIC HEALTH WORK.

AMONG the appropriations made during this session of Congress the following items appear:

Navy Appropriations.—Care of lepers, Navy Station, Island of Guam, \$18,000; for necessities, Medical Department, \$2,400,000; contingencies, Bureau of Medicine and Surgery, \$435,000; bringing remains of sailors and marines from France, \$65,000; care of naval hospital patients, \$85,000; complete construction naval hospital, San Diego, Calif., \$500,000.

Army Appropriations.—Water and sewers at military posts, \$2,000,000; Letterman Hospital, California, \$55,000; claims officers, nurses and enlisted men for pay and allowances during World War, \$500,000; construction and repair of hospitals, \$529,360; maintenance of quarters for hospital stewards, \$10,000; medical and hospital department of army, \$1,000,000; hospital care, Canal Zone garrisons, \$40,000; Army Medical Museum, \$7,500; library, surgeon-general's office, \$12,000; office of surgeon-general, \$223,280; artificial limbs, trusses, etc., \$36,750.

Department of State Appropriations.—Annual share of United States in maintenance of International Sanitary Bureau, \$11,323.16; annual quota of United States in support of the International Office of Public Health, \$3,860; annual contribution for support of Somerset Hospital at Cape Town, Africa, \$50.

Department of Justice Appropriations.—Enforcement of national prohibition act, \$250,000; hospital supplies, medicines at various federal prisons, about \$15,000.

Treasury Department Appropriations.—For expenses to enforce national prohibition and narcotic acts, \$9,250,000; pay and other expenses, Public Health Service, \$2,196,530; maintenance of Hygienic Laboratory, \$45,000; medical examination of aliens, \$5,627,394; quarantine service, \$739,000; prevention of epidemics, \$400,000; field investigation of diseases, \$300,000; Interstate Quarantine Service, \$25,000; rural sanitation, \$50,000; biologic products and viruses, toxins, etc., \$50,000; maintenance of Venereal Disease Division, \$400,000, of which sum \$225,000 shall be allotted to states for co-operative work; repair of Public Health Service hospitals; Otten, N. C., No. 60, \$100,000; Perryville, Md., No. 42, \$150,000; West Roxbury, Mass., No. 44, \$50,000; Palo Alto, Calif., No. 24, \$50,000.

Independent Bureaus Appropriations.—Medical and Hospital Services, \$64,658,680; Vocational Rehabilitation, \$146,409,188.80.

Interior Department Appropriations.—Sup-

pressing liquor traffic among Indians, \$30,000; relieving and preventing disease among Indians, \$370,000; investigation of school hygiene, etc., \$50,000; medical relief in Alaska for Eskimos, \$90,000; investigations of safety of miners, \$378,000; operation and purchase of mine rescue cars, \$285,000; operation of St. Elizabeth's Hospital for Insane \$1,000,000, repair to buildings \$100,000, erection of additional buildings, \$128,500; Columbia Institution for Deaf, \$95,000; Freedmen's Hospital, \$118,555.

Labor Department Appropriations.—Children's Bureau, \$106,040; investigation of child welfare, \$120,000; Maternity and Infancy Act, \$1,240,000.

Agricultural Department Appropriations.—Tuberculosis in animals, \$2,877,600; inspection of meat, \$981,180; prevention of sale of adulterated foods, \$671,401; enforcement of Insecticide Act, \$156,510; dehydration of foods, \$20,500.

Deficiencies.—Continuing construction of Galinger Municipal Hospital, District of Columbia, \$150,000; United States Veterans Bureau, additional for vocational rehabilitation, \$40,000,000; medical and hospital services, \$25,000,000; investigation of women in industry, \$1,800; Public Health Service, Interstate Quarantine Service, \$466; medical and hospital service for disabled war veterans, \$87,776.81; medical, surgical and hospital services, \$130,000; Quarantine Service, \$389,000; prevention of epidemics (emergency), \$1,000; support of National Home of Disabled Volunteer Soldiers, \$514,700; medical charities, District of Columbia, \$23,170.45; support of indigent insane at St. Elizabeth's Hospital, \$148,000; Employees Compensation Commission, \$600,000; United States Veterans Bureau, vocational rehabilitation \$73,714,182, medical and hospital services \$20,287,930; administration of Warehouse Act, \$9,015; care of insane in territory of Alaska, \$8,800; Children's Bureau for maternity and infancy welfare, \$490,000, to be apportioned among the various states; alterations and repairs to Fort Mackenzie, Wyoming, hospital, \$100,000; for additional land to Walter Reed General Hospital, \$94,703.44; United States Veterans Bureau, authorizes transfer of appropriations from Veterans Bureau to United States Public Health Service; United States Public Health Service authorized to use appropriations already made for operation of immigration hospital at Ellis Island; adjustment of Walter Reed General Hospital land purchases, \$44,109.22.

and to those centers of population to which the famine refugees have fled, is flowing from the great laboratories of Paris to Moscow and thence into each plague-stricken town and village. Every courier of the American Relief Administration arriving in Russia brings fresh consignments of the life-saving drugs. The Medical Division of the A. R. A. is bending every effort to carry out its prophylactic program, which involves among other items the inoculation of every child receiving its rations and of every adult who receives the American gift of corn, and to all others who may apply for it.

The inoculation is proceeding rapidly throughout the 16 districts where the American medical supervisors are coöperating closely with all the health organizations of the Soviet hospitals and all of the health agencies of the Soviet government.

Every American Relief Administration feeding station, every school where feeding is carried on, every orphanage that draws American Relief Administration rations is a clinic for the administration of the preventive remedies which will help to stop the spread of the contagion.

Not only serums and vaccines are distributed, but the hypodermic syringes, the needles and the sterilizing materials needed for their administration. The activities of the Medical Division, which was at first only a small part of the American Relief Administration's program, are rapidly becoming one of its outstanding features. The scale upon which the inoculation against disease is being carried on is a stupendous one.

Vaccination against smallpox has been a general practice for years in many countries, but this is the first time in history that an attempt has been made to protect upon so extensive a scale the inhabitants of a country against cholera, typhoid, para-typhoid "a", para-typhoid "b", and smallpox at one and the same time.

Each patient with his first inoculation of the tetra vaccine which gives immunity to the first four diseases named above, also receives the ordinary smallpox vaccination, unless he can show evidence of a previous vaccination. Eight million cubic centimetres of the tetra vaccine have already been ordered and 3,500,000 doses of smallpox vaccine.

In addition to the tetra vaccine already mentioned, 300,000 cubic centimeters of triple vaccine and a million of cholera vaccine have been provided, not to speak of the anti-toxins which run into huge figures. For example, of the diphtheria anti-toxin 91,000,000 units is the provision. Six million units of tetanus anti-toxin, 200,000 of antineurococcic serum and a like quantity of polyvalent anti-dysenteric are other items on the list.

AMERICAN RELIEF ADMINISTRATION.

A CONSTANT stream of serums and vaccines to fight the epidemic diseases which are raging in Russia, particularly in the famine sections

RÉSUMÉ OF COMMUNICABLE DISEASES, JUNE, 1922.

GENERAL PREVALENCE.

THERE were 6,846 cases of communicable diseases reported for this month as against 8,793 for May.

Chicken-pox.—There were 325 cases reported for this month.

Diphtheria decreased from 558 cases for May to 459 cases for June.

Dog-bite requiring anti-rabic treatment was reported in 29 instances. This is a larger number than was ever before reported.

Encephalitis lethargica was reported in 5 instances.

Epidemic cerebrospinal meningitis was reported in 13 instances.

German measles decreased from 96 cases for May to 52 cases for June.

Gonorrhea and Syphilis.—There were 381 cases of gonorrhea and 126 cases of syphilis reported.

Influenza was reported in about the usual numbers. There were 11 cases for June, 1922, and 12 cases for June, 1921.

Measles has begun its annual decline. There were 3,198 cases reported for this month and 4,159 for last month.

Mumps decreased from 514 cases for May to 375 for this month.

Pneumonia, Lobar.—There were 139 cases reported for this month.

Scarlet fever decreased from 755 cases for last month to 470 for this month.

Tuberculosis, Pulmonary.—There were 614 cases reported for this month.

Tuberculosis, other forms, was reported in 130 instances. There were 105 cases reported for last month. In both months the incidence was unusually high.

Typhoid Fever.—There were 41 cases reported for the month.

Whooping cough decreased from 415 cases for May to 359 for this month.

RARE DISEASES.

Anterior poliomyelitis was reported from Lawrence, 1; Lowell, 1; Somerville, 2; total, 4.

Dog-bite requiring anti-rabic treatment was reported from Brookline, 3; Cambridge, 1; Holyoke, 2; Lowell, 17; Newton, 1; Plymouth, 1; Swampscott, 2; Winthrop, 2; total, 29.

Encephalitis lethargica was reported from Boston, 3; Cambridge, 1; Taunton, 1; total, 5.

Epidemic cerebrospinal meningitis was reported from Boston, 4; Concord, 1; Hingham, 1; Lawrence, 1; Lowell, 2; Lynn, 1; Northampton, 1; Peabody, 1; Wrentham, 1; total, 13.

Malaria was reported from Boston, 3; Everett, 1; Holyoke, 1; total, 5.

Septic sore throat was reported from Amherst, 1; Boston, 1; Fall River, 1; Somerville, 2; total, 5.

Smallpox was reported from Milford, 1.

Trachoma was reported from Boston, 4; Cambridge, 1; Lynn, 1; Medway, 1; New Bedford, 1; Somerville, 1; total, 9.

Trichinosis was reported from Holyoke, 1.

CHILD LABOR.

A SENSE of local responsibility for the welfare of the children is what is needed to abolish child labor, declared Herbert Hoover before the National Conference of Social Work in Providence, June 27. Failing in this, an amendment to the Federal Constitution must be sought as the only other alternative to overcome what he considers "a blight that in its measure is more deplorable than war." Forward looking states have passed statutes which fully protect the child in its minority, but there is still a minority of states which are "still in the Middle Ages in their attitude toward childhood." The sense of local responsibility is the only saving grace in this matter, and nothing can be more disheartening than the impulse given to centralization under Federal control by the continuous failure of local government in a matter affecting the nation as a whole so vitally as does the question of child labor. An industry that cannot exist without cheap child labor has no right to exist. A nation that continuously exploits its children is foreordained to fail.—*The Nation's Health*.

CHICAGO'S RAT PROBLEM.

THE business men of Chicago have secured the services of an expert in rat extermination work in order to reduce the danger and financial loss incident to the presence of rats.

The health commissioner has endorsed this movement and promised coöperation. Federal authorities claim that there are as many rats as human beings in this country.

Correspondence.

DIGITALIS IN CARDIAC DISEASE.

NEW YORK, July 19, 1922.

Mr. Editor:

In reading the able and instructive article in your issue of July 13 of Dr. Henry A. Christian, I find the following on page 53: "I know of no cardiac case in which it is necessary to substitute any other drug for digitalis." This statement is far too sweeping and to my mind will occasion, not infrequently, loss of life, if followed, and also be the cause of protracted disease which might be treated successfully with at least one other drug, and that is strophanthus. I have saved lives with tincture of strophanthus in hypodermic tablet form, used sublingually, when I am confident digitalis would have been useless. I have helped restore to strength weak, irregular, fluttering hearts, when digitalis made symptoms worse. For detailed information about "sublingual medication," I refer to my article in *Medical Record*, Dec. 29, 1917.

BEVERLEY ROBINSON, M.D.

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

PAPERS AND DISCUSSIONS OF THE SECTION OF HOSPITAL ADMINISTRATION.

AT ITS MEETING AT THE HARVARD MEDICAL SCHOOL, BOSTON, JUNE 13, 1922.

THE USE OF PATHOLOGICAL MATERIAL IN SMALL HOSPITALS.

By JOHN F. KENNEY, M.D., PAWTUCKET, R. I.

It would be more interesting and far more instructive if this subject were discussed within the four walls of my complete little laboratory in the Memorial Hospital at Pawtucket, R. I. Since we cannot treat it in a concrete way, I will endeavor to give you a fair idea of what we have accomplished in this particular hospital along pathological lines.

Let us take up the subject under three heads: first, the laboratory proper; second, the director and laboratory workers; third, the work that can be done in a small laboratory. To start a laboratory requires only a small amount of money. It is surprising to see what one thousand dollars will do towards equipping a laboratory. All you need at the outset is a room with good lighting and proper plumbing. In my present laboratory we started without even these essentials but made our improvements as we went along. My advice is to start on a small scale and equip yourself as you find the need for it.

In selecting your room, if you have a choice of position make it as close to the operating room as possible, as such a position is very convenient in doing section work. In addition to the laboratory proper, a small animal house in a remote part of the hospital grounds or even on the roof is essential and a morgue for autopsies is, of course, very necessary, while light and ventilation are supremely important factors. While in the army I found from actual experience that a laboratory can be started and in working order in a surprisingly short time. In two instances I was sent to a camp or post with orders to start a laboratory. Upon arriving, in each instance the commander led me to a certain part of the hospital building and pointing to an empty room, informed me that that particular room was to be the laboratory. It was then entirely my own problem. In a short time the room was completely transformed, so that we were able to take care of this branch of the work which was of the utmost importance.

No matter how large or small the hospital, its laboratory director should be a physician. No technician should be given complete charge of a hospital laboratory, for, although a pathologist may, in many cases, be perfectly competent to discover that tests are necessary and to carry them out successfully, yet the training of a physician is essential for diagnosis and for advice as to treatment. Consequently, a physician as laboratory director is, in my opinion, a *sine qua non*. The director should perform all au-

topsies. He should himself interpret all results and reports before they leave the laboratory, except in an emergency. For instance: The technician may report a 2+ positive cholesterin in a patient who had just been under treatment but, if she reported the same in a case without any clinical symptoms, she would not be in a position to request further investigation and discussion with the doctor in charge, as she, in her position, is not required to know all the stages of syphilis and its peculiarities. In other words, she can do things mechanically and make reports of what she finds, but what a staff needs is a medical man to co-operate and advise. For example, in a case suspected of malaria or typhoid, if an increased white count were found, the doctor pathologist, because of his medical training, would know at once that malaria must be eliminated as a possibility, and would suggest other means and tests to arrive at a diagnosis in the incompleated case. This is only one of the numerous cases where the co-operation of a physician would be beneficial.

Remember, I am talking entirely of the smaller hospitals where it will be quite possible to obtain the services of a physician for part time work in the laboratory. Under this arrangement he may spend some time each day in the laboratory to give instructions, make reports, etc. In case he is needed, he will be available and is at all times a consultant. I know of no better way for a physician to start in practice than to ally himself with one of these positions. In his own practice he is much more efficient, especially if he has the pathological training; and above all he has confidence in himself because of this superior training. Nowadays, many of the hospitals are giving internships of one or two years in the laboratory. I know a number of men who settled in different sections of New England after a training of this kind and who have positions where they are able to make their own tests. These men have built up a private practice much greater than the men who were trained in clinical work alone. Many men in practice have not as yet availed themselves of the advantages and the advances made in laboratory aids to diagnosis. The World War was an important thing to these men as in every camp of any size the government furnished laboratories in charge of competent men. Because of the importance of this work, the hospital should pay the director the best salary possible according to its size. The average should be from one to two thousand dollars a year. Some days the physician may be obliged to spend several hours in the laboratory and other days he may be needed only minutes; nevertheless, he is always on call and ready for emergencies and is, therefore, entitled to a reasonable salary.

The technician is always a problem, as some are well trained and others have only a moderate training. However, any intelligent girl with some bacteriological sense can be taught labor-

atory work, and a year's course in theory is an excellent start, for she can be trained later by the director in the branches in which she is not already proficient. Many colleges give special courses in this line and have excellent results. However, I have discovered that nurses make especially fine technicians on account of their familiarity with the hospital routine and I have, therefore, advised that laboratory work in a general way, be included in every nurse's training. Having secured a good technician, pay her well. Otherwise, your smaller hospitals will be continually training girls who will leave as soon as they are able to command a higher salary in a larger hospital.

The work that can be done in a small laboratory is extensive and I believe of the greatest importance. To begin with, the laboratory checks up the operating room and wards on all sterile goods, materials, etc. Wassermann reactions should be carried out as a routine on all patients admitted wherever practicable. Many obscure cases of syphilis that would otherwise be overlooked until after operation are discovered in this way. One case in particular of non-union of fracture made a good recovery after a plus finding and anti-syphilitic treatment. It is not difficult to have your own sheep and ambceptor from your own rabbits. Make your own complement from guinea-pigs, for these animals do not require much care and add very little expense to your laboratory. Guinea-pig inoculations are used also in T. B. cases or in renal diseases. Some of the other routine work done in the laboratory are blood-typing for transfusions, blood urea and blood sugar determinations and tests for cavity fluids, renal functions, smears, stomach contents, stools, blood cultures, spinal fluids, and Widal's. Let me now show you the vital connection between the laboratory and the hospital proper. All new cases in the children's ward should be isolated until a report is sent back that the throat cultures and vaginal smears are negative. All typhoid cases should have routine stool examinations and should not be discharged until negative. A check should also be made on the milk supply and in this way the hospital is protected from an impure supply. Frozen sections should always be available for the surgeon, but notice in advance should be given the pathologist so that he can be on hand at the time of the operation. It is unnecessary to take up in detail all the phases of the work that can be done in any laboratory, no matter how small. In my opinion, it is as necessary to the hospital as is the operating room.

In regard to autopsies, I believe that everyone connected with the hospital, from the superintendent down, should be interested in doing his share in obtaining them. As we all know from experience, people are loath to sign permits for autopsies, but they are so essential that all should bend their energies toward obtaining a

permit when the case is in any way remarkable. As many nurses and physicians as possible should attend each autopsy as it is on the autopsy table that we learn what we might have done. The completion of the autopsy report and records is important, but it should not rest with that, for each case should be taken to the staff meeting and there discussed.

The maintenance of a laboratory is not such a big financial problem. It should not be considered a producing department any more than a public ward should be. A charge to each patient admitted of from one to four dollars for a ward patient and a minimum of five dollars for private patients, with an extra charge for other tests done, has been carried out successfully by us. In this way a revenue that helps to support the laboratory but does not completely cover all expenses is obtained. We have seventy beds in our hospital and our last year's report shows seven thousand, seven hundred and seventy tests. We have the advantage perhaps of having a majority of our staff connected with the larger hospitals in a bordering city and naturally you would expect them to be up in the modern methods of diagnosis. But, in any city or town where a hospital is located the same advantages and methods are available. The entire outlay for a laboratory, together with the expenses for running it, costs less than any other branch or hospital department, and I venture to say that no branch is more important. Any hospital of any size should have and can have a laboratory. Educate the men on the staff to use it and better results will be obtained in treating the patients and it will make more proficient medical men. Every test made in the larger hospitals can be made in a small hospital. Many hospitals have no laboratory facilities at all. They run a large overhead expense, build substantial buildings, have beautifully kept grounds, and no laboratory. I have in mind one hospital with a complete staff, in a city of about forty thousand. I don't believe they have even a microscope. They depend on a state laboratory, which is some distance away, to take care of their work. In these progressive times this seems to me an injustice to the people of a community. Let us hope that in the future every hospital, old and new, large and small, will be equipped with a laboratory.

DISCUSSION.

DR. CYRUS C. STURGIS, Boston: I think Dr. Kenney has mentioned one very important part of the work of the laboratory of the small hospital, and that is autopsies.

I have no general statistics available, but all the small hospitals that I know anything about either have a very low autopsy record, or make no attempts at all to obtain them. Just why this condition exists I don't know, but it seems to me that they must either fail to appreciate the value of autopsies, or they are not using proper methods in obtaining them.

In the 1920 report of the Chicago Academy of Medicine, some 25 or 30 hospitals in Chicago were investigated and it was found that the autopsy record in these hospitals varied from 48 per cent. down to

none at all in nine hospitals. The highest, I believe, was the Presbyterian Hospital of that city. Of the nine hospitals with no autopsies, the majority were small hospitals. Only a few weeks ago, in talking with a representative of a hospital in the Middle West about autopsies, he remarked that he made an attempt to get autopsies only in interesting cases. I think really the most valuable autopsies are those cases which may appear very commonplace from the clinical standpoint, and therefore the thing to do is to attempt to get autopsies in every instance. Of course it is impossible to get 100 per cent., but I believe just the routine asking of the relatives of every patient who dies would give us 25 or 30 per cent. at least.

Now there are plenty of illustrations of how very commonplace cases may prove to be of great value when autopsy is done. Just within the past few weeks at the Peter Bent Brigham Hospital we have had some striking ones. A man was in the hospital five days and died at the end of that time with a diagnosis of acute nephritis, and there was very good evidence to substantiate it. An autopsy was made and the man was found to have typhoid fever with an intestinal perforation. Another case on the surgical side was that of a patient who had an acute appendicitis, was operated on, and died on the operating table. The assumption was, though there was no evidence particularly to support it, that the patient died of too much ether. At autopsy a pituitary tumor was found. Those are just cases that have happened recently.

Every physician ought to appreciate the value of autopsy. Needless to say, the staff that does not get the advantage of co-relating their clinical studies with autopsy findings misses a great deal. The pathologist's part adds just as much to the care of patients as the other laboratory work, such as X-rays, etc.

As to the method of getting autopsies, I should like to tell you of our experience at the Peter Bent Brigham Hospital. Our record on the medical service for the four years previous to 1920 averaged 42 per cent. The first few months of 1920 the autopsy record commenced to fall and got down to almost 25 per cent. At that time a campaign was started to obtain more. We used simple means; in the first place instructing each house officer to ask for permission for autopsy in every single death. Failing to obtain permission, he was to call the resident physician. The record of every death was made to show who was responsible for trying to get the autopsy, whether or not he could get it, and if not, why. Each house officer during his senior term kept a record of the number of autopsies he was able to obtain, and his percentage of autopsies was figured up and given publicly. Since that time we have had 66 per cent. autopsies. For the six months of 1922 the percentage on the medical side has been 76 per cent. One man who is just finishing his senior house officer's term now has an autopsy record of 31 out of 38 deaths, or 84 per cent. This shows that a little enthusiasm and energy put into the work really counts. A small hospital can do it just as well as a large, if the effort is made systematically.

This is a very proper section in which to discuss this matter. I am glad it came up. I believe the superintendent and the administrative staff of the hospitals are largely responsible for success or failure in obtaining autopsies. If they are opposed to autopsies you will not get any; if they are indifferent you will get a few; if they are interested and enthusiastic, you will get many.

DR. P. W. GOLDSBURY, Deerfield: How far are physicians informed, so that they can benefit by any public autopsies or findings of this sort?

DR. KENNEY (answering Dr. Goldsbury's question): I might as well discuss autopsies here now. We went down to eight per cent. in our hospital, and we have, as I said, a 70-bed hospital. It was simply that some

of the men were indifferent. There were only two internes, and of course a surgeon cannot be on the job all the time. It might happen that you could not find the interne on the medical service and the surgical interne did not bother about it. So finally we got the trustees to get into the game. Sharp letters were sent to all the men on the staff, and it is surprising that since January first of last year our autopsies are up pretty close to 50 per cent. The superintendent is also supposed to look after them if she possibly can.

I recall a case that was sent in by a man who happened to be the local medical examiner. The superintendent tried to get an autopsy, but found that the people absolutely refused to have anything to do with anyone connected with the hospital. It was not impressed upon them that something might be found that would be of value to the medical profession in general, so finally the local physician was sent for, appealed to by the surgeon, made a call before they took the body away from the hospital, and finally came back with a signed permit.

Notice of the autopsies are posted on the bulletin board so that the men on the staff will know about them when they come. We cannot publish it in time to get all the local physicians, but most of them are interested in medical matters, and when the man who sent in the case is notified, he is told to bring in any others that he may desire.

DR. W. H. MERRILL, Lawrence: The Lawrence General Hospital, a hospital with 125 beds, has an arrangement with the laboratory of Tufts College Medical School for the examination of pathological material. I have not been told about the expense, but it is so much for a certain number of examinations. The hospital has a resident technician, and the consulting pathologist does not have time to devote to such details as seem necessary.

DR. H. P. STEVENS, Cambridge: I might say a word in regard to the Cambridge Hospital. They have a contract with the Harvard Medical School, Department of Pathology. It has proven very satisfactory. Of course the Cambridge Hospital is near enough so that material can be sent by messenger, and we get reports back very promptly. The same contract provides us with a pathologist for autopsies, and the hospital has never had a resident pathologist. I don't know what it costs, but it is not expensive, and for a hospital within easy access it is a very good arrangement.

Of course where we want immediate frozen sections, that is outside of the contract, and we have to send for a pathologist for the occasion, and we make use of such service to some extent. There is a similar contract for the more elaborate laboratory tests. The hospital makes no effort to do anything but ordinary routine laboratory work, and all other tests are done under a contract with the school.

DR. H. G. STETSON, Greenfield: That is the one thing that was in my mind when I saw the title of this paper. We have a small hospital, but no arrangement whatever for careful microscopic examination of any organs removed, and the only arrangement is a personal arrangement which I have with Dr. Wright. It is some years since I made this arrangement, and it has continued to be satisfactory. It came out of a desire or a wish that we could utilize more of the pathological material removed not only at autopsies but at operations. We are not able to have a pathologist any more than any other small hospital unless it has an enormous endowment. But in any hospital some arrangement could be made with a laboratory whereby this service could be given.

DR. P. H. LEAVITT, Brockton: In Brockton our situation has been largely the same as that described by the three gentlemen who just spoke. We have a small private hospital of forty beds and no resident

pathologist. We have a laboratory, a medical man to look after the ordinary laboratory work, having a very competent bacteriologist at City Hall do the Wassermanns, but the examination of the fresh specimens has been our bugbear. We now, however, have a satisfactory personal arrangement with Dr. Mallory whereby the specimens are examined.

My purpose in rising was to ask whether the diagnosis of fresh specimens by a man doing part laboratory and part general practice was in all cases as accurate as could be desired. We found, trying it out a few years ago, that when diagnosis was made by the part-time pathologist and then later checked up by the consulting pathologist, the results did not always agree. Everybody would, I am sure, be very much interested in finding a part-time pathologist who could absolutely be depended upon. Are there many of them about?

DR. KENNEY (answering question of Dr. Leavitt): Answering that question, of course that is true about everything you would take up. It depends upon the man you get.

With regard to the diagnosis, if a man is interested in pathological work, he won't have to put in a lot of time. The majority of men are interested in some one specialty. For instance, we have through Rhode Island a number of men, a medical man, a surgeon, perhaps a nose and throat man, who will employ a technician together and establish a laboratory, employing perhaps a full-time man if they are in possession of their own laboratory. They get satisfactory service in this way.

In regard to the part-time man, every now and then you will find some man starting out in practice who would like a location. In your city of Brockton you might find a man who would want to locate there, perhaps a younger man who had had some laboratory training. In the Rhode Island Hospital there is a pathologist in charge and for two years he has been doing nothing but pathological work, but several laboratories have the younger men who want part-time work. The pathologist at the Springfield Hospital is a man with training under Dr. Mallory.

About the frozen section work; if a man is interested at all he is going to try to keep it up, and begin in frozen section work as well as the other branches.

With regard to sending specimens to the Harvard Medical School and other hospitals, arrangements made that way are very good and you accomplish a great deal more than if you had a technician and no supervision. There are so many things you can do, however, if you have your own laboratory and pathologist. For instance, a man wants a checking up of blood urea and blood sugar. He has the goods right there, calls in, leaves the order, and the next day the case is taken care of and you don't have to send out. Of course it takes more time to send to another laboratory, and perhaps it is a case of waiting for operation, so if you have to send to a State laboratory, for instance, it takes quite a good deal of time if you have to wait.

In our hospital perhaps 70 per cent. of the cases are surgical, and we are getting a routine of perhaps 300 specimens sent to the laboratory. We have a routine of sending everything, just as in the autopsy work, for sometimes the most unimportant cases apparently turn out to be important. All this takes a man who must be interested in that work.

It is a good idea to try to get a man who can give full time at first, and then part time, gradually getting away from it and letting some other man get into it. But of course with frozen sections a man has to keep up with his work.

DR. J. B. HOWLAND, Boston: There is no doubt that in the last few years there has been a decided change in the attitude of hospitals towards getting post-mortems. I think most of them have felt that the Hebrews have been against granting autopsies be-

cause of religious scruples. I was pleased to see, however, that the Trustees of one of the Jewish hospitals in New York have just passed a resolution favoring the making of autopsies. There is also an interesting article in the "*Modern Hospital*," May, 1922, by Dr. Bluestone, Assistant Director of the Mt. Sinai Hospital in New York, describing methods whereby that institution gets a large percentage of autopsies from their patients, who are largely Jewish.

I was hoping that some one would discuss the subject of the procedure of handling pathological material in hospitals that have no pathologist. I am confident that there is often an arrangement between small hospitals in Massachusetts whereby pathological material is sent to the Harvard Medical School to be examined.

I believe that by writing to the pathological department of the Harvard Medical School, Superintendents of small hospitals can make arrangements to have pathological specimens sent there for diagnosis.

I would like to ask Dr. Kenney whether he thinks that year or two that the man stays in the pathological work is sufficient so that one can rely upon his diagnoses?

DR. KENNEY (answering Dr. Howland's question and closing): That would depend where he received his training. If he had had a lot of section work in a large hospital he would have training enough to be relied upon.

WHAT MEDICAL AND SURGICAL STATISTICS SHOULD BE PUBLISHED IN THE ANNUAL HOSPITAL REPORT?

By DAVID CHEEVER, M.D., BOSTON.

THAT the question of hospital statistics has long been agitated is attested by the fact that, in 1860, Florence Nightingale¹ proposed a plan for uniform hospital statistics and a nomenclature of diseases, to the Fourth International Statistical Congress, in London.

An outstanding tendency in modern medicine is that having to do with the evaluation of existing methods and practices and the more or less wide adoption of standard practices throughout the country. The hospital standardization movement, the effort to standardize the practice of surgery by the American College of Surgeons, to standardize medical schools by the Rockefeller Foundation, to standardize end-results of hospital treatment, to standardize the nomenclature of diseases, are familiar examples. Indeed, so pronounced is the tendency that the individualist might feel anxiety at the prospect of a prescribed level of respectable attainment, and the loss of the occasional flash of brilliancy attained by untrammelled individualism.

It is natural that hospital librarians, executives and staff, resting from their labors at the close of the "open season" on the compilation of reports, should wonder whether their labor has been worth while and whether changes in the system should not be made.

What information should the annual report aim to give and make into a permanent record? The hospital might be regarded as an organization which receives certain raw materials and

aims to turn out a certain finished product, and it would certainly appear reasonable that a report of the year's work should include a statement of the raw materials and of the results accomplished. But as a proper tribute to the founders and benefactors of the institution, it is thought essential that a brief account of its founding and history shall be given, together with a list of benefactions. A list of those who have served it in the past helps to awaken the interest of the public; the list of those in its present employ naturally follows. The treasurer feels it to be his duty to account for his stewardship by a list of the invested funds, and a statement of income and expenditures; the superintendent or administrator presents the details, financial and otherwise, of his affairs. The pressing needs of the institution are set forth to excite the generosity of its friends. The vital statistics of the patients admitted are justly important from a social economic point of view, so tables of age, sex, nativity, color, social condition, occupation, etc., are laboriously presented. Finally, the account of the function for which the hospital exists, namely, the cure of disease, is given in the form of statistical tables which indicate the number of individuals of each sex afflicted with each variety of disease, whether the application of surgical methods was made or not, and the result as expressed in the general terms "well," "relieved," "not relieved," or "dead."

Thus was evolved the complex, costly and little read hospital report of today, consisting of hundreds of pages of laboriously prepared data. What is the circulation of these volumes and what, in general, their final disposition? Who reads them? Local inquiry in Boston does not encourage an impression that they are regarded as important. Doubtless each hospital has a complete file of its own reports, but no local hospital, with one exception, pretends to keep files of its sister institutions, yet one would suppose that precisely to hospital administrators would appeal to greatest degree the records of the others. At the Massachusetts General Hospital it is the aim to have complete files of the reports of all New England hospitals, and of as many as possible of the major hospitals of the country. At present there are complete files there of ten or twelve major hospitals in recent years, and this is the most complete collection in Boston. At the Boston Medical Library there is no pretense at filing and cataloging the reports. In the libraries of the Massachusetts General Hospital, the Boston City Hospital and the Boston Medical Library it was reported that there is no call for these reports; the occasional inquirer seeking them usually for a name or an address. At the Boston Public Library, the library of Harvard University and the Boston Athenaeum they are not preserved. The library of the Harvard Medical School is glad to receive these reports and catalogues them, but the files

are far from complete. It is here, apparently, that most use is made of them, for students, especially during their fourth year, frequently consult them in order to ascertain the amount and general character of the work done at the hospital, with a view to making up their minds where they had better apply for interne positions. The library of the Surgeon General's Office, in Washington, as would be expected, "maintains a very complete file of all this material, and it is estimated that the annual reports of about 800 hospitals are on file in the Document Division. While the demand for these reports is not as large as for current medical literature, it is sufficient more than to justify the attempt to make these files complete."²

The volumes are sent to the managers and trustees, to the members of the visiting staff, to the former house-officers, to friends and benefactors, past and prospective, to members of the city government if the institution be a municipal one. It is safe to say that not one recipient in a hundred does more than to glance idly at the pages. Perhaps the banker looks at the investments, the executive manager reads details of administration and the per capita per day cost, the philanthropist may read of the annual deficit and of the needs of the institution, and the physician glances at the medical and surgical statistics and perhaps examines with real interest the mortality rate of some particular disease or surgical operation.

The elaborateness of reports of large hospitals in recent years is scarcely realized except by those who compile or study them. The report of the Massachusetts General Hospital for 1916 was a handsomely printed volume of 567 pages. The list of occupations of patients occupied 14 closely printed pages and included about 575 occupations of men, and half as many again of women. With all the enthusiasm in the world for the study of the relation between occupation and disease, or for the solution of sociological problems by investigating the occupations of those who resort for treatment, it is difficult to attach much significance to the fact that one major, United States Army, and one social reformer were treated in 1916. Are we to infer that officers in the United States Army who are above and below the rank of major are less liable to disease because they do not appear on the list? In the butchering trade there may be a delicate professional distinction between ham skimmers and ham boners, but we are at a loss to explain why two of the former and one of the latter should have fallen ill. Was the one Hebrew teacher one of the chosen people, or merely a teacher of Hebrew, or both? Did the 14 deep-sea fishermen suffer from mal-de-mer, and if so what should afflict the 16 plain ordinary fishermen? I confess to real curiosity as to the ailment of the lonely lumber in an undertaker's shop. Did he have melancholia or tie douloureux, or did he dislocate his mandible

from inordinate mirth? To be serious, this elaborate list is useless as showing any relationship between sickness and occupation, and its economic importance would be covered by classifying patients into the wage earners, salaried persons, capitalists, etc.

The medical and surgical data published in most reports consist of statistical tables showing the number of patients suffering from each disease, the sex, and the condition on discharge expressed by such terms as "well," "relieved," "not relieved," and "dead." There is further a table showing the operations performed, and the result couched in similar terms. Some hospitals, notably the Massachusetts General and the Peter Bent Brigham, have added brief abstracts of the operative fatal cases. Of just what use are these statistics? They give a good idea of the incidence of disease in a locality for a given year, as far as concerns the classes of diseases admitted to a particular hospital, but this usually does not include the epidemic and contagious diseases which chiefly interest the epidemiologist and health officer. They afford information as to the general medical and surgical flavor of the hospital; for instance, one hospital in a certain city will be distinguished for its wealth of traumatic surgery, which is brought to it by the police, or which comes to it on account of its location in congested industrial centres, while a neighboring hospital will receive but little accident work but will be the resort of many patients with pathological lesions such as tumors, parasitic diseases, etc. Many such instances readily come to mind. It is my experience that medical students consult these statistics in order to form an opinion as to where they may expect to find the kind of interne service which they desire.

Of true scientific value, it must be confessed, there is little or none. The data concerning each patient is so utterly inadequate that the work of hospitals, or the hospital work of communities cannot be compared. There is but beginning to be uniformity of nomenclature in diagnosis, and the terms used to designate the results of treatment are so vague (except the word "dead!") and involve so much of the personal equation, that just comparisons are impossible. Even the abstracts of surgical fatalities, in which the writer was a believer at first, seem of limited value. They serve, indeed, to recall to the surgeon the circumstances of his failure and to impress upon him anew errors and pitfalls which might have been avoided, but to other readers they seem like apologies, too brief to be of scientific value.

It seems, therefore, that the medical and surgical statistics do not in any sense constitute an adequate presentation of the work of the hospital as a contribution to existing medical knowledge. It might seem strange to the layman that such contributions as the Johns Hopkins Hospital Reports, the former Medical and Surgical

Reports of the Boston City Hospital, and similar volumes from various hospitals of New York, Philadelphia, and London are not the rule, rather than the exception. In former years when medical journals were few, the members of the staff of a hospital found the annual report the best, perhaps the only available vehicle for making known their work, but the subdivision of the general field of medicine into specialties, each of which has its special journals, each having a far wider circulation than could a hospital report, has resulted widely in the discontinuance of the latter and the resort by members of hospital staffs to the journals as means of publishing their work. The average hospital cannot compete with the medical journal, either in the matter of circulation or financial support. Doubtless this is to be for various reasons regretted, but it must be accepted as a fact.

But there is another side to the shield.

No student in the history of medicine, indeed no one who brings a trace of the philosophical viewpoint to the practice of his profession, can fail to find much of interest in a study of these dull statistical medical and surgical reports over a period of years. Turn, for instance, to the annual reports of the Boston City Hospital, which included these statistics from its foundation until they were omitted in 1916-1917. In 1865, there were performed 185 surgical operations, among which were but two laparotomies, both for ovarian cyst, and both patients died! Chiefly were the surgeons concerned with amputations, 44 in number, ligations, reduction of dislocations, operations for fistula in ano, for haemorrhoids, for the "radical cure" of hydrocele by injection of irritating chemicals or by inserting a seton; it is not until 1889, twenty-four years later, that the radical excision of the hydrocele sac appears in the list. Under the heading of "Results," it is specified whether healing was primary or secondary. Truly, surgery as we know it today was practically non-existent. There were years after this, even up to 1883, when not a single laparotomy was performed! "Peritonitis" occurs as a diagnosis early among the medical diseases, but it is not until 1882 that "typhilitis" and "peri-typhilitis" appear, but from then on these diagnoses are frequent, and it appears that peritonitis was usually fatal and peri-typhilitis was not. The suspicion is justified that these were almost all cases of acute appendicitis, and those localized in the right iliac fossa got well, while those developing into general peritonitis died. In 1887, following the demonstration of the disease by Fitz, in 1886, the diagnosis of appendicitis occurs for the first time, and from then on the diagnosis of typhilitis and peri-typhilitis soon disappear, and peritonitis ceases to be a medical diagnosis. An epitome of the history of the operative treatment of hernia is furnished by the appearance in succeeding reports of Wood's operation, Hea-

ton's operation, MacEwen's, McBurney's, and finally in 1893, Bassini's operation. The tragedy of diphtheria before anti-toxin is revealed by the 78 tracheotomies in 1884 for laryngeal diphtheria, with 56 deaths, with the substitution of O'Dwyer's intubation in succeeding years, so that in 1888 we find intubation used in 100 cases with 78 deaths, and tracheotomy used only in 17 desperate cases, all fatal, where the lesser procedure failed. We can afford to smile now at the diagnosis of a single case of chronic ulcer of the stomach on the medical service in 1883, and the 52 cases of dyspepsia, gastrodynia, pyrosis and gastro-duodenitis. Such interesting side lights on medical history may be multiplied a hundred fold.

Let it be admitted, then, that the medical and surgical statistics of the annual hospital report have but little true scientific value, but afford a rough survey of the incidence of non-fatal diseases in the community at a given time, of the results of treatment grouped in certain broad classes, and give opportunity for the comparison of these facts in different years and epochs in different communities. Exactly these data are not to be obtained, so far as I know, from any other source. In addition, the statistics afford some basis, inadequate it is true, for comparison of the kind of work done in different hospitals, and are much used by medical students and doubtless others, in determining in what institutions they will seek to continue their training. The real question at issue is, Do these advantages justify the time, labor and money put into the compilation of the reports? In this connection it will be admitted probably that the essentials of these statistical tables should be prepared annually and kept on file in the hospital record room in some easily available form, as is now done at the Massachusetts General Hospital, even if they are not published. The additional labor to prepare them for the printer would be slight, so that the issue boils down to whether or not the statistical tables are worth the cost of printing and publishing them. The writer, who, by the way, does not have the duty of trying to make both ends meet in hospital administration, believes that they are worth the cost, and that reports would be the less significant without them. But the reports should be condensed, shortened, and made uniform as to nomenclature and method of compilation, throughout a community, or better, throughout the country. The tables of medical and surgical diseases should be combined, since the only difference between them (with few exceptions) is the therapeutic method employed. Minor sub-varieties of disease should be omitted and broader grouping attempted. The results of treatment should be grouped solely as "relieved," "not relieved" and "dead," for the term "well" is usually quite inapplicable. The table of surgical operations is really no more essential than one of serum or hydrotherapeutic

treatments for the medical service, yet it constitutes such a striking method and excites so much interest that it had better remain. It is not easy to combine it with other tables, but its complexity can be greatly reduced. For inconsequential verbosity it is only necessary to refer to the enumeration of the 57 different varieties of tinkering which are carried out on the female genitalia. The writer believes also that the synopsis of operative fatalities is not worth while.

While not strictly germane to the title of this paper, the writer wishes to point out other possibilities for the report. The suggestion has been made that major hospitals throughout the country, under the direction of a central organization, should take up annually some subject of special interest and report the experiences of each hospital in the appointed subject for the preceding year or series of years. Such a subject might be, for instance, the results of treatment of fracture of the neck of the femur. Thus annually would be available an enormous amount of data on the actual results of diverse methods of treatment of the same condition in the hands of the members of hospital staffs throughout the country, which could not fail to be enlightening. However, this would be a return to the principle of scientific hospital reports, which, with noteworthy exceptions, have been given up for reasons before noted. The same survey of hospital work in limited fields could be secured by agreement among members in existing scientific societies to investigate and report on the same subject during a given year, the result appearing as communications in existing journals.

The writer feels that the annual hospital report should contain a carefully prepared study of the professional work of the hospital during the preceding year, written by members of the staff, preferably a surgeon and a physician who, having a philosophical bent of mind, could give an account of the influences dominating the treatment of disease during that time, the introduction of new methods, and the discarding of old. Think of what interest would attach to such running contemporaneous comment on the introduction of the principles of antiseptics and asepsis, the carbolic spray, ligatures, methods of wound treatment, rubber gloves, etc. One looks in vain in the old reports for such comment or information. New methods and practices ereep in slowly and become a part of the every-day routine, and their existence can scarcely be inferred from the existing reports. We can scarcely believe it, yet it is certain that what we are doing today will be as historically interesting to our successors forty years hence as is the story of the "Listerism" of the early eighties to us now.

Let each agent in the work of the hospital, trustee, treasurer, administrator, and staff give an account of his stewardship in the annual report, but let it be condensed, simplified, clari-

fied, and let the purpose be to render it a document of semi-scientific and especially of historical value for the information of the world with regard to the work we are doing today.

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DISCUSSION.

DR. J. B. HOWLAND, Boston: I think there has been very considerable evidence in the last ten years among hospital trustees and superintendents that they were wavering about what should be published in the hospital reports. Besides cutting down costs, I think there are other reasons, and doubt has crept in as to whether elaborate reports were worth while. They are costly to print and it is costly to keep up the tables in the record room. Hospitals that formerly published reports of hundreds of pages are now getting out brief pamphlets.

I think there must be among those present some with decided ideas as to what hospital reports should consist of. We should like to hear from you.

DR. W. P. BOWERS, Clinton: I haven't any very definite suggestions, anything more than an endeavor to express appreciation of the recommendations which have been made. I think it has been found very generally that interpretation of hospital reports has been a rather difficult task when one wanted to get definite information, so that if the reports can be made more concise, more definite, and I refer especially to the professional part of the report, I think they would be of tremendous value.

It seems to me that we can safely leave the financial features to the people who manage the hospital, to the superintendent and the trustees, but the scientific report, it seems to me, may be made very much more concise, very much clearer, and therefore better available for comparative purposes.

DR. H. G. STETSON, Greenfield: With reference to this subject, there were several years when we did not publish any report, largely from lack of funds. A hospital report costs from \$75 to \$150, and for many years the hospital could not afford it. There came a time when the trustees felt that they should have a report, and I was unfortunately the one who was picked to make up that report.

Our hospital is, like many hospitals, an open hospital, and any physician of ethical standing in the community has a right to bring patients in and take care of them. That year and the following year I went through the report of diagnoses given, and I prepared a list of diseases, and the number, as Dr. Cheever has said, the condition at discharge, etc. But as I went over it, the more I saw the less convinced I became of its actual value. When a baby a week old dies of chronic nephritis; or when a patient is admitted with some disease that is considered more or less chronic, like nephritis or cancer, and is discharged in three days as cured, there is something wrong.

Some of the diagnoses were unquestionably valuable, but I felt that there was a great deal of question whether statistics like that were of value or worth the printing. Furthermore, in hospital reports only a few hospitals follow any definite nomenclature. A few have the International, a few the Bellevue, and a few more the form that is used in the Massachusetts General Hospital, and others you could not classify according to any method. If you want to classify disease in different hospitals you have got to go ahead and re-classify the whole thing yourself.

One other thing that we should be more careful

about and have some definite plan to follow, is the report of hospital maintenance. There are many hospital reports in which you look in vain to see what the maintenance cost is, how much it costs per patient, where the money has gone, etc. This item is particularly valuable in the case of those who are interested in hospital expenditures, and in most hospital reports you will fail to see anything to tie to. One hospital keeps books one way, another in another way, and there is no way to compare expenses of maintenance in one hospital with those in other hospitals. The same is true of incomes; some call income one thing and some another.

The report of the Massachusetts Charitable Organizations in the form in which they submit it at present, comes nearer to being of value in giving out actual maintenance figures, but even in that there are sometimes inaccuracies.

I think there should be some definite system for small hospitals to follow so that they can compare their maintenance and upkeep with one another, to see whether they are keeping within the reasonable bounds.

Dr. W. H. MERRILL, Lawrence: It may be a bit of encouragement to Dr. Cheever and others to hear the statement of one hospital which has made a decided advance in accurateness and completeness of reports.

The nomenclature used is that which the Massachusetts General Hospital has adopted, more reliable figures are presented, and the financial reports of this hospital are also accurately kept. There seems to be no difficulty in obtaining the figures of costs.

Dr. H. A. CHRISTIAN, Boston: One criticism that can be made of all hospital reports is that they are deadly dull. No one feels any great amount of enthusiasm about reading them. They are dull not because interesting things have not happened, but they are dull because the incidents of the year are incompletely or poorly presented.

Dr. Cheever has referred to the failure to find in hospital reports any account of introduction of new methods and development of these methods, and so on. It seems to me that is a fair example of one of the defects of many hospital reports. Perhaps some of you are accustomed to read "*Science*" and if so, you will know that for the last two or three months there has been running in "*Science*" a series of letters stimulated by some one's making a severe criticism of the scientists of this country and their inability to present their work and discoveries in an entertaining way to the public. That writer went so far as to say that it was largely due to the misconception of the scientists that literature was not science, and a literary presentation of a subject was belittling the subject from the standpoint of science, because sentences must be crude and involved and more or less unintelligent. Perhaps a good deal of that would apply to medical men in connection with their hospital reports.

It seems to me that the statistical part of the report is quite worth while, but that it should not be carried to extreme by undue repetition, not very useful tables, etc. I think a discussion could arrive at the elimination of some of this, and the simplification of other parts, and a lengthening and greater detail in still others. The main thing, it seems to me, in looking over a report, is the running comment that gives you some idea of what it is all about, and what the hospital is doing, presented in a way that is intelligible not only to the medical man but to the non-medical man who may have an interest in the hospital, and presented in a way that, even though not entertaining, yet is a fair chronicle of what has happened in the hospital.

There are one or two hospital reports that stand out as being of interest and worth while. Dr. G. Alder Blumer of the Butler Hospital of Providence puts out a report that is well written, entertaining

and gives an account that is worth while reading, even though my interest in it was extremely minor. It was so well written that I enjoyed it for that reason. He describes well what is going on, and nearly every year there is some suggestion of very distinct interest and value in that report. This year I regret to hear his swan song as active superintendent.

If we can eliminate the deadly dullness of our hospital reports it will help to increase the income from people who have been interested in the hospital, and as a result make contributions or leave bequests in their wills. They must have their interest aroused by something that has been brought to their attention in the hospital reports.

Another thing that it is perfectly proper to put in a hospital report is a discussion of the defects of the organization or administration of that institution from the point of view of improving it, and from the point of view of letting others find out the failures as well as the successes and things which you approve of. The things which you dislike in your own job ought to be brought to the attention of the trustees, the superintendent, and so on. I think there is entirely too little criticism of one's self in most of the hospital reports describing hospital organization and hospital work.

Dr. L. E. PARRINS, Boston: I have been interested in hospital reports since 1916, when I read the complete file of reports of several Boston hospitals. My interest was chiefly historical at that time. The Massachusetts Charitable Eye and Ear Infirmary has no separate history, but the facts of the founding, organization, etc., can be obtained from its annual reports. This is one real value of reports, but I believe that historical data might be given in some better manner, rather than in the present haphazard method. In reading any report I like to know to whom it is addressed. It makes a great deal of difference to anyone who writes if he has in mind the prospective readers, also, the writer should have a clear conception of why the report is written. Hospital Annual Reports are usually addressed to the trustees, who, though an important audience, constitute a very small part of the community. Would it not be a good thing for the writers of reports to consider a wider horizon and make a readable report that the community or average person could scan with interest? The report should "sell itself" to the reader. Hospital administrators have not always kept this point of view in mind.

Mrs. GRACE E. MYERS, Boston: As Librarian I have handled for many years the annual medical and surgical statistics of the Massachusetts General Hospital, and in these years have seen many improvements. At first this sort of thing used to appear, all in the same report: rens mobilis, floating kidney, movable kidney, nephroptosis. Of course, during my first year, when I was unfamiliar with medical nomenclature, they were all reported, much to my later mortification. No one should ever make up medical and surgical reports until after a long term of handling clinical records, so that such synonyms as I have mentioned can be recognized.

The war brought about a new condition of things at the Massachusetts General Hospital, which at first seemed difficult to meet. Expenses had to be reduced, and my own force of clerks was cut down just half. We were keeping up the clinical catalogues and the annual report, but work had to be minimized, and I find that in these two or three years we have been able to see a considerable improvement in methods. The war was not altogether an unmitigated evil. Whereas we formerly devoted one card to each patient, we now catalogue eight patients on the same card, which is an economy of space and time; and our statistics, which once required three months of steady work to prepare for publication, are now kept

on cards made up week by week and are not published, but kept on file. We have one card for each diagnosis, and this card shows the number of patients, male and female, with morbidity. A card on any diagnosis for a given year may be selected and statistics for that year obtained. The cards are filed in drawers, year by year, and comparisons may easily be made. There are at present six years reported in this way, and by pulling out three drawers, the statistics for the whole six years can be compared at a glance. It is a matter of only a few moments to collect figures upon any given diagnosis. Many doctors who have come to our hospital to look into our methods have expressed themselves as very well pleased with this plan, and in fact have said it was the best they had ever seen.

One good suggestion made by Dr. Cheever is that some subject of special interest for study should be agreed upon by the different hospitals in a community and the results printed in respective annual reports. This was discussed at a recent meeting of the Record Librarians, who agreed upon the excellence of the scheme, and the interest that would undoubtedly ensue.

Dr. N. W. RAXON, Boston: What Dr. Cheever has said is in accordance with my own ideas, namely that the ordinary hospital report is altogether too long and there is much that should be left out. The essentials that he has named are sound and should appear in each report. There is no need of my naming them over again.

The only way of ever accomplishing anything is to standardize it and have each hospital report along the same lines. That must be qualified immediately by saying that a small hospital should not report along the same lines as the large general hospital or special hospital. The general form should be the same for all hospitals, but details must vary widely according to the type of hospital making the report. You have got to sub-divide it further, and this must be accomplished by being taken up by one central body like the hospital association or the American Medical Association, and worked out from the center of a central organization.

THE PLACE OF THE FULL-TIME AND PART-TIME PHYSICIAN IN THE MODERN HOSPITAL.

By ROGER I. LEE, M.D., CAMBRIDGE, MASS.

THE prodigious advances in medicine have inevitably created many new conditions, and many new problems. The future promises to show as great or even greater advances. Therefore, even if the new conditions of today are met and the new problems of today are solved, there will still be the necessity of change in the future. I doubt if anyone would be willing to recommend any plan as an entirely satisfactory solution even for the present, and it is reasonably certain that any plan which might be satisfactory today will not meet the conditions which will exist in several decades. Nevertheless, it ought to be helpful to face the situation as it exists today, and to attempt to guide some of the necessary changes into paths that not only seem usable for the present but also promising for the future.

The early conception of hospitals in this country, and I am speaking now perhaps more particularly concerning the Massachusetts General Hospital, with which I have the good fortune to

be connected, was that the hospital was an asylum for the needy sick. Persons with comfortable homes were expected to be taken care of at home as a matter of course. The leading practitioners of the locality gladly devoted a portion of their day to attendance on the sick poor at the hospital. It must be remembered that these were the days before Florence Nightingale demonstrated the value of the trained nurse. Operations were few and dangerous. The emetic and the purge wrought their havoc without preference for home or hospital. Likewise there was no advantage in comfort or convenience in being bled at a hospital. Then in rapid succession came a large number of events which entirely overturned the practice of medicine. Anaesthesia was discovered, and the surgeon was able to delve deeply in the secrets of the human anatomy upon a non-resisting and non-suffering patient. With the discoveries in bacteriology, surgical operation lost most of its dangers, but demanded an exact and special technique. Medical diagnosis and even medical treatment began to utilize cumbersome apparatus and elaborate procedures. Nursing became a recognized profession. Great laboratories grew up in connection with hospitals. We find the hospitals no longer as asylums for the sick poor, but as the amphitheatre of the best efforts of the master minds in all branches of medicine. Today the well-to-do demand the same advantages of the well equipped hospital which the poor possessed undisputed in the early period of transition. To meet these changing conditions there has been a very rapid increase in the number of hospitals. The medical profession and the laity have met in a common demand for more hospitals. The hospitals, although under the widest possible variety of auspices, have, generally speaking, many problems in common. More or less irrespective of the financial status of the patients, most hospitals conceive their functions as the care of the sick, research, and teaching. There is some confusion concerning the teaching function of a hospital. Every hospital does teaching, even in the restricted sense of medical teaching. Some of that teaching may be the formal instruction of undergraduate medical students, or it may be the informal teaching of visiting doctors, of internes, or of the staff.

With the development of hospitals there has been a considerable readjustment in medical practice. The complexities of medical practice rather naturally led to specialization which has gone to great length in medicine, particularly in the larger communities. We find that the professors of anatomy, of physiology, of chemistry, and in general of all the so-called fundamental sciences, are no longer practicing physicians, but are devoting their entire time to teaching and research. We can discern a similar tendency in the teaching of other professions, for example in law, and in engineering.

In the hospitals, we find that a number of physicians have been giving full time to the hospital in their specialties. The medical superintendent of the hospital, in a large hospital, not infrequently devotes his entire time to hospital affairs and does not carry on private practice. A decade or so ago, the hospital pathologist was in many instances still attempting to do general practice. Nowadays he is often on a salary and his activities are perhaps confined to hospital work and teaching. The rapid growth of the x-ray laboratory has shown a very similar trend. At first men worked with the x-ray, and did general practice. At a later period the men confined their attention exclusively to the x-ray, partly in the hospital, partly in private practice, and now we see a very definite trend toward the utilization of the full time of a considerable proportion of the professional personnel of the x-ray department in the hospital. In the twenty-odd years since Roentgenology was discovered, we cannot, of course, find a complete unanimity of action on the part of all workers in the x-ray, but I think that the trend must be obvious to all. Perhaps of wider acceptance but of the same general significance is the payment of salaries for professional services by the hospitals. The salaries are for the most part for part-time service but it is, nevertheless, a long step away from the old idea of gratuitous attendance on the sick poor in the hospitals.

It was inevitable that this same tendency for paid full-time work should develop in what we still elect to call the clinical branches, namely, the actual care of the sick patient. In many ways the full-time hospital physician and surgeon seem to be the almost inevitable and logical outgrowth of the present situation. I interpret full-time rather liberally, meaning that the hospital (often with an affiliated medical school) is the full-time physician's main interest and main source of professional income, and that he does not maintain a regular private office for private patients. By part time I mean that the hospital is only a part of the interest of such a physician and that another considerable part of the interest, perhaps usually the main interest, and the chief source of his income, is elsewhere; as a rule, of course, in private practice. Relatively only a very few part-time physicians receive a salary for their hospital work.

Even if it be granted that the instruction of medical students is better carried on by full-time clinical professors and a full-time teaching staff, it does not necessarily follow that our teaching hospitals (teaching in the sense of instructing undergraduate medical students) ought to be manned entirely or even controlled by full-time physicians, nor that the non-teaching hospitals (non-teaching in the same sense) ought to adopt the full-time plan, even if in the Mayo clinic such a solution has been complac-

ently accepted as meeting the obvious requirements of a somewhat unique situation.

The proposal of the full-time basis by no means has met with complete approval. It must be granted at once, I think, that a hospital with a full-time staff is more easily and perhaps more efficiently administered. Furthermore, a smaller staff also makes for ease and efficiency of administration. Again, in those hospitals in which there are working both full-time and part-time professional men, it has usually happened, when the requisite allowances for personality are made, that the full-time men have inevitably and naturally acquired the greater influence in the hospital. Nevertheless, the problem ought not to be solved on the basis of any of these advantages. The advantage of possible development of greater opportunities for scientific investigation, which certainly accrue to the hospital employing the full-time plan, will not, furthermore, of necessity be of decisive value. In that connection it must be recognized from the history of medicine that material advantages and scientific productiveness are by no means always closely parallel.

The disadvantages of the full-time plan are essentially that such a plan does not meet the needs of the community in a large way. Even when one grants that the teaching of medical students and of medical graduates may be more effectively done, and even if one grants, merely for the sake of argument, but which is certainly debatable, that the patients in such a hospital are as well or better cared for than under any other plan, there still remains the outstanding fact that under the full-time plan the hospital does not tend to maintain close contact with the community. The influence of a hospital under the full-time plan while very great as a demonstration institution would, nevertheless, probably be very much less in the community than a hospital with a much larger part-time staff. Despite the large hospital facilities at present, the overwhelming majority of the population do not become hospital patients except under special circumstances. This majority has now and is likely to have for some time its own physicians. For the common good of laity and physicians it is desirable that the scientific leadership and stimulus of the hospital should be brought to this majority of the community in every way feasible.

There is always, it seems to me, in the case of a part-time visiting physician or surgeon, a very fair exchange between the doctor and the hospital. The hospital offers the doctor a much needed opportunity to develop himself in the science and practice of medicine. At first he has to meet the criticisms of his elders and always he has to meet the criticisms of his internes. In partial payment the part-time doctor contributes to the hospital a wide variety of experience gained from private practice, some of which will be reflected in the actual care of the pa-

tients, and all of which should benefit the staff, the internes, the medical students, both undergraduate and graduate. Furthermore, a probably more important contribution in the contribution in terms of good will and appreciation of the community which may at times take a very substantial financial form. Partly due to the early traditions of the profession and partly due to the prodigious changes in medicine, the medical profession and all its appurtenances, such as medical schools, hospitals, laboratories and the like, greatly need a sympathetic understanding on the part of the general public.

As I have tried to indicate, any attempted solution of this important problem must be tentative on account of the rapidly changing conditions of medical practice. One must recognize and make use of certain trends in medicine and, in my opinion, it is not necessary in so doing to compromise the broader aspects of the necessity of public service on the part of the profession. It would seem, therefore, wise and expedient to recognize the important principle of the full-time physician or surgeon and to attempt to gain the advantage of that principle without sacrificing the other principles involved. It will be desirable that no inflexible standards be adopted, because it will be well to study the development of many plans in different communities. Again, there will always be very special situations both in regard to local conditions and special foundations for which such solutions must be made. I have already referred to the Mayo Clinic. I might mention the Hospital for Medical Research of the Rockefeller Foundation and certain rural community hospitals, as special types. To my mind, however, it would be a mistake to separate into distinct groups those hospitals which do undergraduate teaching and those hospitals which do not teach medical undergraduates. There will of necessity be some slight difference in hospitals, but they all have in common the care of the sick, the development of medical investigation, training and teaching of internes, the training and teaching of graduate physicians, the training and teaching of their respective staffs, and community co-operation in its broadest sense.

Nearly all hospitals of any considerable size have accepted the principle of full-time physicians and surgeons for the interne period. That the principle of the full-time physician and surgeon should be extended beyond this one aspect is my strong belief. I believe that above the grade of interne specially qualified men should be encouraged to continue intensive full-time work for a varying period. I believe, furthermore, that on the grade which is generally designated as the visiting staff there might well be a full-time man, upon whom would fall much of the responsibility of the executive work of the professional staff which does not belong to the hospital superintendent or director. In a hospital which concerns itself with the teaching of

undergraduate medical students such a full-time doctor might well be either the professor of medicine or surgery or the executive officer of that department. Similarly, in the hospital which does not do undergraduate teaching such a full-time man might either be the head of one of the services or perhaps the executive officer of one of the services. Under his direction would naturally come the problem of developing medical investigation within the walls of the hospital. In this way it would be possible to create a more effective professional administration than is now usually possible with a completely part-time staff. In this proposed arrangement the large majority of the staff will be part-time doctors who will bring to the clinic their experiences and their contacts in private practice and who will take away to the community at large their hospital experiences and their hospital contacts. In my opinion it certainly would not be well to restrict the visiting staff merely to men who do only office or consultation practice. It would seem desirable to have representatives of all the different groups on the staff. It would probably happen that there would be rather frequent changes in such a relatively large staff, both in the full-time personnel when the younger full-time men go into varying kinds of practice and in the part-time personnel when active hospital work is no longer mutually advantageous to the hospital and physician. I dwell for a moment upon the importance of these occasional changes, because, as is well known, to those familiar with the hospital situation, there not infrequently arises a situation in the case of any individual doctor in which the exchange between the doctor and the hospital is essentially negligible. The doctor is so busy that he contributes nothing to the hospital and the hospital contributes nothing to him except a vague sense of pride in being connected with a good institution. Such a situation, familiar to all of us and tolerable perhaps in an exceptional instance, is hardly healthy when there are many instances. A junior man would make very much more of the opportunities than the overdriven practitioner or consultant, and the hospital would be doing a really better work for the community. I yield to no one in my admiration for the busy general practitioner. It is my firm belief that frequently he would do a larger service to the community if he substituted two hours of hospital for two hours of general practice. Unquestionably the hospital needs him. However, in this transition stage, too often the association of the very busy practitioner with the hospital has not been satisfactory. I have strong hopes that in the future some arrangement which is mutually agreeable and beneficial to the hospital and to the busy practitioner can be evolved. The recognition on the part of hospitals that they must serve the entire community, rich as well as poor, will, I think, help solve this difficulty. But I would indeed be sorry if the hospital development

should take such a form as to change this same very busy private practitioner into a full-time hospital practitioner.

Most successful medical men unconsciously or deliberately restrict their activities, although often not in the number of hours of work a day. One cannot entirely disregard time and distance even in a motor car. It is entirely feasible, even if not always easy, for the busiest practitioner to secure some daily free time. There comes up, of course, the obvious suggestion of part-time salary, particularly for those men who apparently subtract from their income for every moment spent at the hospital. I am not prepared to be dogmatic on the subject of part-time salaries for clinical men. It is bound to be tried out very extensively, because it is such an obvious compromise. To my mind, however, the part-time salary should rarely be a permanent arrangement. The holder ought to be passing to whole time with a larger salary or part time without salary. There will always be important exceptions, but in general two points have already been clearly demonstrated. First, the physician is abundantly repaid indirectly from his association with the hospital; second, the salary does not seem to be a very important factor in increasing the value of the part-time work. It depends on the man, not on the salary.

There is no one who appreciates more than I that such a plan as I have tentatively and vaguely outlined would not always be easy to operate. Furthermore, such a plan in the recognition of the desirability of even a moderate extension of the full-time and salary principle means increased financial expenditure on the part of the hospital. I by no means minimize the financial burdens of the hospital when I recall that somehow the money has been forthcoming for other innovations of proven value, as, for example, the expensive x-ray equipment, perhaps even radium, and often the salary of the x-ray specialist. The difficulties of this general plan are not insurmountable, provided that there is a frank recognition of the dual principle involved and provided that there is an adequate recognition of the fact that the hospital has a responsibility in the largest sense to the community and that in the adoption of a necessary principle in the trend of full-time medicine, it at the same time adopts the equally important principle that the part-time physician plays an equally important rôle, and that his position, while different, is equally dignified and equally vital to the success of the hospital and to the continued esteem of the hospital in the eyes of the profession and of the community.

DISCUSSION.

DR. H. A. CHRISTIAN, Boston: I agree so thoroughly with what Dr. Lee has said that there is very little to discuss. In his plan of development it seems to me perhaps worth emphasizing that there is a considerable place for part-time men with part-time salary. I think there are more men who do hospital work who should receive a salary remuneration. I

don't believe that they should be pushed to the point of paying everybody per hour for work, or anything approaching that, but I think there are a great many of the younger group of men who are extremely valuable to the hospital. Of course the hospital is valuable to them, but in order to live and develop, they need a certain amount of financial aid and I think the hospital should provide a part of that. It is the same in the medical school, where the unpaid teacher has not always been a great success.

Now in the whole-time plan, but little attention has been given to the ageing of the whole-time man. I have an idea that the whole-time man is more like champagne than sherry, because he does not improve as time goes on, but is apt to become "flat." As Dr. Lee has suggested, he is extremely effective in the hospital organization, because of many reasons, but as time goes on I think he tends to show very much the lack of contact with the community, and consequently his earlier efficiency decreases in a different ratio from the efficiency of the part-time man, who is constantly in contact with the general public in some form of private work, or practice.

So my feeling has always been that the whole-time man, even in the strictest sense, should be whole time for a comparatively short period of time, and then give way to some one else in that job and shift over to a more definitely part-time arrangement with the hospital, probably on some sliding scale.

I feel very confident that it is extremely easy for the man who works solely in the hospital to gradually slump on the job, as most professors do. It is always a great problem in the university to take care of the man who has become less efficient, because he has become a little lazy and medical men are not unlike other people in that phase of the situation. It is one of the undesirable features of the whole-time scheme. A part-time man is not so apt to become lazy because of the necessity of hustling to pay his necessary expenses, and the whole-time man is not confronted with that necessity.

I think it is a very interesting fact that long before we heard much about the general discussion of whole-time teachers in clinics and whole-time hospital men, the process was well under way and the hospital had a number of whole-time men, so that it is not a new thing, but a gradual evolution that has taken place. The problem is how far it shall go in one direction and how far in the other.

I think Dr. Lee has very admirably sized up the situation and has given a very good outline of the desirable relationship between the whole-time and the part-time workers.

DR. P. W. GOLDSBURY, Deerfield: In line with what Dr. Christian has said about a man's growing state, I heard a recent discussion about the full-time and part-time health officer, and one, who was upholding the policy of part-time health officers told of his experience in a certain State of which he was health commissioner. He dwelt on the trouble he had in taking a full-time health officer, well trained, from the eastern part of the country and having him put into the State over which he was health commissioner; and the difficulty that that health officer had in interpreting himself to the people. It seems to me there is an analogous situation here, as applied to the case of a man who is a full-time hospital man getting where he cannot interpret himself to the people of the district which that hospital is to serve. I think it a very important point to keep in touch with the people.

DR. LEE (closing): Probably Dr. Christian and I are entirely agreed about the part-time individual on the part-time salary. I feel that this particular development may be a good deal of a menace, and that is the reason I rather decry it. I think under special circumstances that the part-time salary man in the hospital may be very desirable, but as I tried to point

out, I feel that it should be largely a transitory arrangement. In comment on Dr. Goldsbury's remarks, I do not accept the analogy between the part-time health officer and part-time physician.

Original Articles.

THE REGISTRY OF BONE SARCOMA AND MEDICAL HUMAN NATURE.

The readers of the BOSTON MEDICAL AND SURGICAL JOURNAL may be interested in the replies to the questionnaire postal which I recently issued, in order to find the number of cases of bone sarcoma now resident in Massachusetts.

The following are the two letters which I wrote to the JOURNAL concerning this matter:

February 2, 1922.

Mr. Editor:

I wonder if you would give me your help in obtaining some statistics for the registry of bone sarcoma? It is desirable to know the frequency of occurrence of cases of this lesion and there are no statistics by which we can obtain it. It occurred to me that a pretty accurate estimate could be made in the following way:

According to the directory of the American Medical Association (1918) the population of Massachusetts is 3,662,329 and the number of physicians 5494. If each one of these physicians should drop me a postal saying either "I do know" or "I do not know of a case of bone sarcoma at present alive in Massachusetts," we should have, almost by return mail, the best information in the world on the percentage of this disease per capita of population.

Of course I realize that your JOURNAL, interesting and instructive as it is, by no means reaches every physician in the state, and that many of those whom it does reach do not read everything in it. Nevertheless, there seems to be a way to counterbalance that discrepancy. If every physician who *does* read this letter will constitute himself a local committee for a week and ask every other physician he meets during that week whether he knows of a living case of bone sarcoma, and obtains their signatures, I believe we should reach nearly every physician in the state. These could be checked off in the directory and I could make a personal appeal to the remainder.

I believe that every doctor in Massachusetts would be glad to contribute his bit to medical science, if the doing so did not involve too much time and expense. This plan would involve but a minute of time and a cent apiece, so the main thing would be to get the plan to them. Will you try it? They will each do their bit if you do.

A few words about the registry may not be out of place. The registry of bone sarcoma aims to be a combined national study of the diagnosis

and treatment of this lesion. Although organized independently by Dr. Bloodgood of Baltimore, Dr. Ewing of New York and the writer, it is now a committee of the Americau College of Surgeons. Our object is to register every case of bone sarcoma and by following the cases (through their medical attendants) to learn what the result of each is and what, if any, forms of treatment are effective. At present these cases are too rare for any one surgeon or clinic to obtain a sufficient number for study. We do not expect to find an excessive number in the whole country. In fact, during the year and a half in which we have been collecting cases we have only found four five-year cures by amputation, and altogether only under one hundred cases which are now living, including those known to be moribund.

If the physicians of Massachusetts will promptly send in the postal cards, negative and positive, as above suggested, we shall at least know what the problem is in this state. All supposed-to-be bone sarcomas should be reported, including giant-cell tumors, except epulis. We want to know of all cases now alive whether cured, under treatment or moribund. We want negative answers as well as positive.

When we once know who has charge of each case in Massachusetts we can communicate directly with him and perhaps by showing our collection help him to treat his particular case more satisfactorily. We can at least give him expert pathologic opinion on sections of tissue. We should be glad to demonstrate our collection to anyone interested.

I hope, Mr. Editor, you may see fit to publish this letter, although I fully realize that it may be a precedent you do not care to establish. I ask the favor because our committee represents a great national association which has undertaken this intensive study of a rare and singularly fatal disease. The work of the committee consumes a great deal of time and I hope that you and your readers will help us out.

The American College of Surgeons holds its clinical congress in Boston next October. I hope we shall then be able to state the exact number of cases of bone sarcoma in Massachusetts, with pathologic proof of each case if it is obtainable.

Should this letter be read by physicians outside of Massachusetts, I may repeat that this investigation is a national one, and we should appreciate any positive reports of cases. It is only in Massachusetts that I am trying to get *negative* as well as positive replies.

(Signed) E. A. CODMAN, M. D.

February 27, 1922.

Mr. Editor:

I wonder if the result of my letter in your issue of February 2 would interest your readers? My letter was intended to enable the registry of bone sarcoma to find out how many cases of bone sarcoma were known to be living

in Massachusetts, whether cured, under treatment, or moribund. It suggested that if every one of the 5494 physicians in this state would drop me a postal stating whether or not he knew of a case we should have at once the best statistics ever obtained on the frequency of bone sarcoma.

In reply I have had up to date *only seventeen negative and two positive answers*. Is this because your Journal is not read or because of the indifference of the medical profession as to whether the frequency of bone sarcoma is known or not?

Perhaps your readers may be interested in the human nature problem involved, even if they are indifferent as regards the advance of medical science. Your editorial board may also be interested to know what proportion of your 3546 subscribers in Massachusetts read the JOURNAL thoroughly. I therefore enclose a diagram which aims to analyze the problem.

If you are interested enough to publish this letter and diagram in three successive issues I will undertake to send a return postal to every physician listed as living in Massachusetts, in the directory of the American Medical Association, who has not dropped me a postal a week after the third issue. On one-half of the postal I will have this diagram printed; the other half will have the return address to me. Eventually you can publish the diagram with the numbers following each heading. This will give the facts to the few interested in bone sarcoma and the many interested in the BOSTON MEDICAL AND SURGICAL JOURNAL and in the psychology of the medical profession.

(Signed) E. A. CODMAN, M. D.

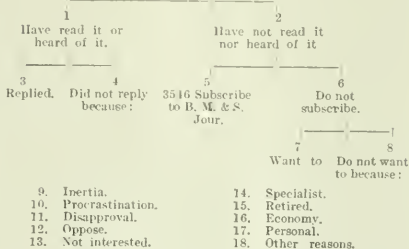
Everyone is interested in human nature, even if not in bone sarcoma. Each of us thinks he knows something of the human nature of his fellow practitioners in Massachusetts. Here is a chance to test ourselves. Let each reader of this article make his guess of the number under each of the headings on the postal and then compare with the text. Whether astute politicians or professional psychologists would be best qualified to answer these riddles I do not know, but a wise man should be able to do so better than a mere "guesser."

Undoubtedly in sending this questionnaire I have added to the many annoyances which afflict the modern practitioner. One writes as follows, expressing his "amusement at the solemn earnestness with which a statistical study of bone sarcoma developed into an intensely scrupulous tabulation of physicians. No serious soul with a burning missionary zeal appreciates that when he asks a general practitioner to pause and give him his facts he is one more of a horde of modern complications that are wearing on our patience. We are beset by telephone, by mail, by interviews by social service sleuths, family welfarers, accident and health insurance certifi-

DIAGRAM.

5495 PHYSICIANS IN MASSACHUSETTS.

LETTER ON REGISTRY OF BONE SARCOMA IN BOSTON MEDICAL & SURGICAL JOURNAL, FEBRUARY 2, 1922.



Please reply to this by consecutive numbers, e.g., 1-4-7-5 means "I have read or heard of the Registry and did not reply because I have retired from practice"; 2-6-8-16 means "I have not read nor heard about the Registry of Bone Sarcoma and do not subscribe to the Boston Medical and Surgical Journal from motives of economy."

Dear Doctor:

May 1, 1922.

The Registry of Cases of Bone-Sarcoma wishes to obtain for statistical purposes the number of cases of this disease at present alive in Massachusetts.

The letter referred to asked each physician to reply as to whether he knew of a case now living, whether cured, under treatment or moribund.

We shall be very grateful if you will state on the return postal whether or not you know of a case, and also give us the facts called for in the above scheme. Negative as well as positive answers are solicited.

E. A. CODMAN, Registrar.

RETURN POSTAL.

I do—do not—know of a case of bone sarcoma at present living in Massachusetts.

My reasons for not replying to your letter in the BOSTON MEDICAL AND SURGICAL JOURNAL were:

(Signature).....

icates, workman's compensation documents, lawyers' letters, etc. These time-consuming, insistent nuisances have multiplied most horribly in the last ten years. The end is not yet, because now the soldier and, especially, the almost soldiers, are just beginning a drive for bales of affidavits to bolster up claims, many of them bogus." However, he did his bit and said he did not know of a case of bone sarcoma!

Another wrote that he was no more interested in bone sarcoma than I was in knowing "how many flies could light on a golf ball." But he, too, did his bit and said that he did not know of a case. There were other interesting replies, but none were so depressing as those who did not reply at all, for they spoiled the statistics.

Evidently the postals were received in very different spirits by different individuals according to their views of life in general. Dark suspicions of the intentions of the writer were probably held by some who promptly dropped the postal into their waste basket. Pity for my

wasted optimism probably indolently slipped the card into other waste baskets. Rebellious feelings against the unfairness of modern life may have made others tear the card to bits. One may speculate indefinitely as to the motives that inspire men to make decisions—even trivial decisions—but if you, reader, understand the psychology of your fellow practitioners in Massachusetts, write your numbers under the various headings.

My motives, so far as one can understand his own motives, were in fact to interest the practitioner in this study, so that when the American College of Surgeons meets in Boston next fall I can state that every case of bone sarcoma has been registered and that whatever treatment the patient is undergoing, every case in Massachusetts is being put on record for the benefit of future sufferers with this disease. Financially I have nothing to gain, for no charge is made for the services of the registry.

Personally, I should gain something—success in a difficult task is something anyone enjoys briefly. If I can collect all the cases in Massachusetts my committee can collect nearly all the cases in the United States and make a study of this disease, which will be really worth while. If we know the number in our 4,000,000 population in this state we can at least estimate the magnitude of our problem.

And if I can show that Massachusetts is keeping a record of every case that her physicians and surgeons are experimenting upon, I shall have an example to set before the world. These patients *must* be experimented upon. Shall we set the example of recording the results of these experiments or shall we continue to let these patients be exploited by hospital "authorities," self-constituted "experts" and "successful" practitioners?

If any honest physician, whether he be chief of a great surgical service or an underpaid, overworked practitioner, is treating one of these patients fairly he will not be ashamed to record the case or to inform the patient or his friends of the existence of the registry collection, and to give the patient the benefit of his own study of the other cases already registered. The registry will be glad to have anyone who is treating a case of bone sarcoma study its material. The collection is public property, under the guardianship of the American College of Surgeons. The writer is the unpaid registrar and would regard it as his duty to demonstrate the collection to any one who registers a case.

My objective was twofold. First, to let every physician in Massachusetts know of the registry of bone sarcoma and what help it could be to patients with this lesion. Second, to locate every case of bone sarcoma in the state and get the co-operation of the physician in charge of each case. How far have we succeeded?

In the first place it is impossible to accurately determine the number of physicians in the

state. The State Board of Registration in Medicine keeps a file of those who have been registered, but does not make an active file, deducting those who die or move away or even those who move into the state and do not register (unless complaint is made). The directory of the American Medical Association for 1921 gives the number as 5959. This figure is, of course, out of date, but is probably the best available. Return postals were sent to 5577 of these, leaving out some of those marked "retired" and "specialists." Of these 157 were returned "unclaimed," "dead," "away" or with no notation at all. This leaves 5420.

Of this number we have heard from 2230 as to the main question of whether they knew of a living case of bone sarcoma. Only 115 answered positively, and by cutting out duplicates we have only located 71 possible cases of bone sarcoma. We are still endeavoring to get detailed proof of these.

So as to letting the physicians of the state know of the existence of the registry of bone sarcoma, we can be fairly sure we have reached two-fifths of them and probably most of them. As to whether we have located all the cases of bone sarcoma we can be a little more optimistic. I think it is a fair assumption that a physician who knows of a case would be apt to reply to the card and that one who did not would not bother to send negative evidence.

Now with regard to the other questions on the card which have no relation to bone sarcoma, but to medical human nature. This might be called a study in "bother."

Only 56 bothered to answer the first two letters. Only 2230 bothered to answer the postal.

Only 658 of these bothered to state they had read the letter and give their reasons for not answering it.

Admitted inertia, procrastination, not interested, or having failed to realize that the statistics necessitated negative as well as positive answers.....	377
Thought they had previously replied...	30
Thought their answers were not desired because they were specialists.....	121
Thought their answers were not desired because they were retired.....	71
Did not reply because of personal or other reasons.....	53
Expressed disapproval or opposition....	6
	<hr/> 658

This leaves us still in doubt of the state of mind of the 3190 who did not bother to reply at all. Certainly the opposition cannot be strong if only six bothered to express it.

Concerning the question as to how well the BOSTON MEDICAL AND SURGICAL JOURNAL is read, 1026 bothered to state that they had not read my letter. Of these 1026, 243 bothered to state that they subscribed to the JOURNAL and 273 that

they did not subscribe and 21 bothered to say that they wished to subscribe! Whereas 510 of those who bothered to answer that they had not read the letter did not bother to state whether they were subscribers or not. This is a refinement in the degree of bother.

What is the state of mind of the 3190 who have not helped me with their answers? Is there opposition or only extreme indifference? Surely each must understand that negative replies are necessary for reliable statistics. Only six of the 2230 who answered have expressed opposition or disapproval. Five simply stated "disapproval" and only one gave a reason: "Your method in gathering your data has antagonized rather than elicited my interest in your study. Your data could be obtained in a more dignified and constructive way, I believe." This is the only criticism I have had, yet this critic did not neglect to do his bit and stated he did not know of a case of bone sarcoma.

The reason for mixing up the other questions with that on bone sarcoma was that I believed the total would interest a larger number of men and I should thereby gain my two chief objectives of getting the registry known and of finding out the actual number of living cases. Perhaps the author of the criticism understands medical human nature better than the writer. So far as I know no one has ever attempted to gather statistics in this way before and some method had to be chosen. As chairman of the committee I have expended \$135.25 in this effort and it remains to be seen whether the regents of the college will feel that I must bear the expense personally or that I should be reimbursed. To my mind the importance of making the study complete can hardly be measured in dollars. I may be criticized for expending this money in this way, but no member of the American College of Surgeons would be criticized for charging this amount for the simple operation of amputating a limb for a patient with bone sarcoma! Yet the facts which this registry of bone sarcoma have already collected show that few if any surgeons are qualified to decide whether a limb should be amputated in any given case or not.

Perhaps it is because the medical profession realizes that this plan of registering every case of bone sarcoma for thorough study is an epitome of the just criticisms of our methods of surgical practice, that they distrust it and are disinclined to do their bit to aid me in gathering my statistics. Or is it just dead indifference?

If there is any real opposition one would think that more than six of 5577 to whom the postals were addressed would express it.

Will some wise man *show me* (not *tell me*) how to reach the other 3190 necessary to complete my statistics? I have expended all the money I think it is right to expend for the college on this questionnaire, but I believe I could

obtain from private sources a like amount to be spent on a better method.

THE TREATMENT OF ASTHMA.*

By FRANCIS M. RACKEMANN, M.D., BOSTON.

Physician to Out-Patients, Massachusetts General Hospital.

[From the Anaphylaxis Clinic of the Massachusetts General Hospital.]

MANY methods of treatment have been devised and described for asthma. Each one of these methods is of great use in certain cases, but no one of these methods will cure every case. This simply emphasizes what we know already—namely, that there are many different kinds of asthma—so many in fact that it is entirely reasonable to regard asthma as a symptom and not as a disease entity and to define the word "asthma" as a peculiar type of dyspnea. According to this definition it is quite obvious that there is a considerable variety of cases. Thus there are not only typical cases of asthma of the extrinsic type where symptoms occur only after exposure to the particular foreign protein cause, but there are many other cases in which there is no such apparent cause and yet which during the attack present quite the same clinical picture as the first group. Still other cases have a chronic bronchitis, and finally, there are here included cases which have the typical barrel-shaped chest and the chronic cyanosis of pulmonary emphysema. Cardiac asthma has not been consciously included.

The various kinds of asthma are shown on the accompanying chart. This chart has been



*Read before the New York Academy of Medicine on April 18, 1922.

found to be very convenient in studying individual cases as it indicates not only five important groups, but also shows how the character of the disease in the individual patient may change. This change is due to bacterial invasion, probably in most cases of the bronchial mucosa, so that beginning with a simple protein asthma we have first a simple complicated asthma and later a more advanced type, finally associated with chronic pulmonary emphysema, the symptoms of which are perennial and which appear to bear little if any relation to the original cause.

In a recent review of 648 cases¹, foreign proteins were considered to be the underlying cause of asthma in 38%. Just as these 38% of sensitive cases can be subdivided into groups, so also can the 62% of non-sensitive cases be subdivided more or less into groups. I have designated some of these cases as bacterial asthma and others as perennial asthma and another more important group as reflex asthma.

In this connection the diagnosis of bacterial asthma is made partly by excluding foreign proteids as causes, but on the other hand it is made also on the history. Several cases have developed asthma immediately following some acute respiratory infection. These cases have considerable cough and raise definite amounts of sputum, so that it would seem entirely reasonable to regard bacteria as responsible. Another group of cases has attacks of asthma in the spring and fall but during the summer and winter are entirely well. Their attacks come on in spite of the fact that they lead exactly the same sort of a life in exactly the same locality and, therefore, it is hardly reasonable to assume that protein sensitiveness can be a cause, especially since during many months in the summer and also in the winter they are entirely well.

Similarly, the cases of winter asthma are assumed to be largely bacterial in nature. Here again foreign proteins could hardly be important, although it is conceivable that by living more indoors behind closed windows the dose of some particular dust or odor might be larger.

The diagnosis of bacterial asthma in children is apparently confirmed by the fact that in most cases vaccine therapy really does prevent the onset of "colds" and thus definitely relieve the asthma and all this without any changes in diet or mode of living.

The term perennial asthma is undoubtedly artificial and simply includes those non-sensitive cases who have symptoms at all seasons without any apparent cause.

The diagnosis of reflex asthma is made largely on the recognition of pathology elsewhere than in the lungs, treatment of which by surgery or otherwise often relieves the asthma.

So far as diagnosis is concerned, it is the experience of the writer that the history is by far the most important part of the study. A pa-

tient with late hay fever develops asthma in early September: this asthma hangs on until after the first frost, perhaps until November. The patient is worried because two years ago the asthma stopped in late September when the hay fever stopped. If we conceive of a pollen asthma complicated by bacterial infection such a history is easy to explain.

In view of the foregoing it is obvious that the treatment of asthma is really the treatment of the cause. It is beyond the scope of this paper to discuss the technic of pollen treatment but it is important to recognize in these so-called complicated cases, and particularly in the perennial cases, that pollens are the underlying factor and hence the next season should witness a very determined effort to desensitize the patient so as to prevent the onset of the usual train of symptoms and the continued progress of the disease, because when once chronic emphysema has developed, no treatment is really satisfactory.

Like the pollen cases, the animal dander and other dust cases are susceptible to specific treatment. In these, however, we are much more fortunate in being frequently able to remove the offending substance from the patient. It is not unlikely that such an avoidance of the specific cause may bring about a spontaneous rise of tolerance or desensitization. Schloss² speaks of cases with a spontaneous and temporary desensitization. Recently a patient said that he used to have horse asthma as a child; has been entirely well for many years until he went to the circus and had another attack. The several years' freedom can, of course, be interpreted as due to an increased, but not an absolute tolerance, since symptoms did follow when the dose of the offending dust was large.

The author's personal experience with the treatment of horse asthma with horse-hair extract has been far from satisfactory. A variety of extracts, all of which give beautiful tests in horse-sensitive patients, have been used, but in most of these cases it has been quite impossible to increase the dose above a certain small maximum, not only because the local reactions following the subcutaneous doses were large, but also because severe symptoms at times supervened. One case, however, has been cured, since she has had no asthma for nearly three years. In her case it *was* possible to increase the doses slowly but steadily. Her skin test, done recently, still shows a positive reaction to horse dander.

The subject of vaccines in asthma is indeed a large and important one. Theoretically, at least, vaccines act specifically to stimulate the organism to overcome the invasion by a particular bacterium. There also is a non-specific effect probably due to a non-specific mobilization of specific antibodies, as shown by Hektoen, Bieleing, and others. And finally there is the psychic effect of doing something definite for the patient—a feeble argument for vaccine ther-

apy, but in certain cases a justifiable argument.

Before discussing the indications for the use of vaccines, there are these contraindications: Vaccines should never be used until a careful study has been made; until foreign proteins as possible factors have been carefully considered, and until possible foci of infection or other lesions have been removed or treated. Vaccines should never be used if there is a fever. As has been just said, however, a foreign protein or extrinsic asthma of any type may be complicated by bacterial infection, and in certain cases vaccines can be given, for example, together with the protein treatment. For example—the perennial type of asthma based perhaps on pollen sensitiveness and proved not to be caused by other foreign proteins may be treated temporarily at least by vaccines.

Direct indications for vaccines are few. There is a considerable group of children who have asthma associated with colds—in other words, asthmatic bronchitis. Treatment with vaccines is really worth while, particularly if the attacks are separated by definite intervals so that organisms isolated in one attack can be used in a vaccine to prevent the next. Likewise, in adults, there are many cases whose asthma occurs at relatively long intervals in definite attacks, also preceded by colds, and in these cases, too, vaccines are a reasonable treatment. In adults over forty years old it is quite common to see asthma which may be designated as “winter asthma,” since these individuals are perfectly well in summer, and in whom the first respiratory infection of the autumn is very shortly followed by asthma which troubles them with wheezy breathing and dyspnea on exertion throughout most of the winter. In these cases the symptoms are not always severe, most of them raise more or less opaque sputum and the clinical picture is one of a sluggish, low-grade bronchial infection associated with wheezing. In these cases, likewise, vaccines are worth trying and often do good.

As to the *technic of vaccine therapy*. The sputum or other material is smeared directly over the surface of a rabbit-blood agar plate. Various types of colonies are identified, isolated in pure culture and transplanted usually to dextrose broth. Vaccines made in the usual way are roughly standardized (according to the opacity of the suspension) so that one cubic centimeter contains about one billion organisms. From each case four or five individual vaccines are made. The selection of the particular vaccine is based upon the observation, which has been repeatedly confirmed, that vaccines in asthma do good only in case some local reaction follows their subcutaneous injection. A quarter of a c. c. or about two hundred and fifty million bacteria of each vaccine is injected subcutaneously. In twenty-four hours it will usually be found that one or perhaps two of the injection sites show a red area, varying in diameter

from one to two inches, which is slightly swollen and tender. The other sites may show a trifling redness or nothing. No attention is paid to the reaction until after eighteen or twenty-four hours. The vaccine producing this local reaction is the one selected for treatment. If two sites show a redness, the two vaccines are both used but are injected separately, so that further reactions to their injections can be studied and compared.

As regards *heterologous vaccines*. It is very important to observe that in a few cases where autogenous vaccines have been made, that subcutaneous injections were made with heterologous vaccines as a control to the autogenous. In a few of these cases such heterologous vaccines gave reactions which were as large, or larger, than the autogenous and, under these circumstances, it has been frequently found that treatment with the heterologous vaccine has brought about satisfactory results.

As to whether one particular vaccine is more apt to produce a positive reaction than another, it may be said that there is no one type of vaccine which invariably produces a positive reaction. A green-producing streptococcus may react in one patient and give relief when used in treatment in that patient, while in another patient there will be no local reaction at all. In the same way hemolytic and nonhemolytic, white and yellow staphylococci may or may not give a reaction. This indicates that the reactions depend upon some peculiarity of the patient and not of the vaccine. The important point is that whatever the vaccine producing a local reaction, treatment with it will almost always do good.

In treatment, doses are given at intervals of five to seven days and are graded according to the local reaction which has followed the previous dose. However, additions to the previous dose are rarely made more than two-tenths of a cubic centimeter, so that after six doses the patient is receiving a dose of about one and a quarter billion and this provided local reactions have not been too large. I would emphasize the importance of a local reaction by saying that it is all too common to have an injection of vaccine followed by no local reaction at all. Under these conditions the dose can be doubled at the next visit and perhaps thereafter doubled repeatedly without producing any local reaction and without making the patient better or worse. On the other hand, when an injection of vaccine does cause a local reaction, further doses will in most cases do good. If these doses are pushed too rapidly, the asthma is often aggravated to a definite extent—a phenomenon perhaps comparable to the focal reaction which occurs after the injection of many specific and non-specific substances.

In those cases where vaccines bring about relief, this relief usually occurs before six or seven doses have been given, and it is very doubtful whether it is worth while to continue the re-

peated injection of that particular vaccine beyond this point without clinical results in the meantime.

As to the results of the use of vaccines. It is very difficult to estimate results; replies to questionnaires are only fairly satisfactory, not only because the patient's statement is the only check, but also because most of the patients are taking potassium iodide or other remedies or are modifying their life in some way which in itself is important. However, an earnest effort to discover the value of vaccines has shown the following:—Autogenous vaccines have been used in one series of 32 cases, including all types, with good results in 24 cases. Heterologous vaccines have been used in another series of 17 cases with good results in 11 cases, so that it is quite evident that the use of vaccines is worth while. However, these good results are by no means always permanent. It frequently happens that whereas during one winter the patient was treated with some success, attacks will occur during the following winter and further treatment, starting over again with fresh cultures must be undertaken.

The general treatment of the asthmatic must never be overlooked. In looking over the reports turned in from a recent questionnaire, it was quite gratifying to find that of those cases heard from practically all originally classed as reflex asthma were definitely improved. Fifteen of these reports were from children in whom efforts to improve their malnutrition, bad hygiene or improper methods of feeding constituted the only treatment. All fifteen were markedly improved.

One of these children was a tall, pale, thin faced girl of nine who had been having asthma in regular weekly attacks, usually on Sunday, for several months. On the advice of the family doctor, milk and eggs had been withheld from the diet. The child was obviously underweight. The chest was long and thin, with rounded shoulders and projecting neck and head; the front chest was quite flat and the abdomen was prominent. Skin tests were done, found negative, and later repeated in order to satisfy the mother that the child could take all foods without difficulty. The diet was rearranged and balanced properly. Her school lunch was adjusted so that she had two hearty sandwiches and no cake. Regular play and exercise out of doors was insisted on, and, in addition, arm and chest exercises were prescribed. Hydriodic acid was given temporarily. When seen a year later the child had had only two attacks in the previous four months and had gained a great deal in weight and strength.

Another child was a small boy of ten. Asthma had existed since infancy and in addition he suffered from attacks of syncope and convulsions, strongly suggesting epilepsy. He was distinctly "queer" mentally. During these attacks he had never injured himself nor did he

lose control of his sphincters. He was a very "spoiled" child. He was round shouldered and in very poor general condition. In spite of the possible epilepsy he was given corrective exercises and was put on a very rigid daily regime and schedule, including plenty of time out of doors. Within a month the epileptiform seizures had practically disappeared. He had gained one inch in height and several pounds in weight and his asthma, while not entirely gone, was improved to a marked degree. There was no other treatment beyond measures of general hygiene and careful mental control.

Tonsils were removed from four other children, with good results in three. In six adults bad teeth, infected antra or bad tonsils were treated surgically with good results in four. One of these is a striking case. A girl of 26, she had severe and almost constant asthma for ten years. Her tests were all negative, and in the hospital ward she continued to have severe attacks for over three weeks, in spite of all treatment, and was discharged in poor condition. Later, in the outpatient department, a pansinusitis was finally recognized, and following a left Killian operation, she was free of all asthma for nearly six months; and then, following a slight return of her symptoms, the other side was similarly drained, and she is today having some asthma, but in very mild form, and the hope of curing her is reasonable. She has gained nearly twenty pounds in weight.

Two patients had a positive Wassermann, one was treated with arsphenamin and so far is very much better. The other had not returned for treatment and the asthma is the same. In four patients, asthma was probably dependent upon overwork or excessive mental worry, as forced rest, both mental and physical, has cured two of these patients. Two patients with visceroptosis have had no asthma since wearing a proper abdominal belt.

Several patients have been advised to move to another climate. One of these, an Italian laborer, was sent back to his family in Italy, where he is now well; while in America he had for two years practically constant asthma which remained almost the same in the hospital ward, where presumably foreign protein dust would not reach him. Another, a superintendent of nurses, writes from California that the very severe attacks of last winter, which forced her to bed for several weeks at a time, have gone and she is now well. Results such as these should leave us ready to believe that in certain cases a neurosis may be the underlying basis, although there are always other factors.

Finally, it should be borne in mind that asthmatics often get well by themselves. While there is available no figure to show what proportion of children with asthma recover spontaneously, this figure is probably large. It is interesting that of 222 patients now over 30 years of

age only 18% have had asthma since before the age of 15.

By emphasizing in this paper the importance of the general physical condition of asthmatics, it is by no means intended that attention should be drawn away from foreign proteins and their frequently vital importance to the cause of the disease. In the study of each patient, foreign proteins should always be borne in mind and never excluded without reason. Skin tests should always be done in doubtful cases and these tests should be interpreted logically and perhaps repeated if necessary. While positive skin reactions obtained with reliable test substances are probably always to be regarded as evidences of slight sensitiveness, yet in many cases, this sensitiveness is so light as to be clinically unimportant and such tests may usually be disregarded. Furthermore, the finding of a negative skin test does not always rule out sensitiveness to a given substance.

However, skin tests alone are by no means the only method of study and it is usually true that success in treatment must in each case be preceded by a very careful consideration of the patient as a whole. When the different pieces of evidence are in, their relative importance must be weighed and the whole must be correlated intelligently.

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VIOLET RAY IN THE TREATMENT OF VARIOLA.

By PASQUALE ROMEO, M.D., BRIDGEPORT, CONN.

SINCE the time of writing a preliminary note upon the treatment of variola with exposure to the influence of violet ray, I have had opportunity to prove the value of such a treatment in two other cases, bringing the total cases treated by me to three.

Each case was of marked constitutional severity. Two cases were female patients: One 28 years old and the other 37. Both have been successfully vaccinated, but once, when children.

The male patient, aged 26, the first case treated by me with violet ray, had been vaccinated twice with negative results: once when in childhood, again about six years ago, while in the Army.

This case seen in consultation with the attending physician, was at the fifth day of eruption. Patient was covered with a myriad of vesicles all over his body, the face, the palmar and plantar regions. Two vesicles were visible around the cornea of left eye, which was also the seat of a phlogistic process; an epischleri-

tis, causing intense lachrymation and photophobia. The other eye was slightly congested.

The onset of the disease was a typical one, with chill, general malaise, vomiting, nausea, headache, lumbar pains, sore throat and fever, ranging from 105 and 106 F.

Delirium was also a prominent symptom.

The family physician, although hesitant about giving a diagnosis, was inclined to regard the case as one of influenza.

The examination of the respiratory tract was negative and there was no indication of any other trouble which might account for the high temperature.

Four days later the fever came down to 98.6 F., while only three little macules were manifested on the forehead.

Patient paid no attention to it and went to work as usual. Two days later, on rising in the morning, he found that his chest and his arms were covered with a large number of macules. Being frightened he remained in bed and summoned his doctor, who diagnosed smallpox.

Next day all the surface of the body was covered with macules.

When I saw the patient he was very restless and uncomfortable.

He could not lie comfortably, could not use his hands, could not stand on his feet, could hardly eat because of the number of vesicles around his lips and was distressed on account of the general skin irritation.

Nervous prostration was very marked and the patient pitifully asked to be relieved of his suffering.

Opiates, bromides, chloral, absorbent powders, antiseptic lotions were tried with very little benefit.

Knowing that violet ray has been proven to have a place in the therapy of certain skin diseases, I suggested the use of a Menin violet ray lamp, 110 voltage.

Results were gratifying and beyond my expectation. Few minutes after exposure to the ray patient started to say: "Oh, it feels fine; oh, it is really a blessing; I wish that all my body could be treated at the same time; it is so soothing."

Patient felt very much relieved and he begged to have the apparatus left with him, which I did.

The following day I and the family physician visited the patient and to our surprise we noticed a marked improvement in the clinical picture. Patient reported that he slept well for the first time after five days and nights. He could hardly find suitable language by which to thank us for the almost immediate relief afforded him.

All vesicles were dried up and the patient could eat and was able to sit on a chair and move around a little.

The distinctive variola appearances had faded so much, in twelve hours' time, that it really seemed very remarkable.

The initial exposure to the light was of about three hours' duration applied to the whole body. Then patient went to sleep immediately after the treatment.

Treatments lasted for six days and patient applied them as often as he liked, without any rule as to time and duration.

The clinical observation warrants me in stating that—due to the violet ray action—the pustule stage was aborted.

With the exception of some small area, where the influence of the ray did not penetrate, the *restitutio ad integrum* has been satisfactory. Only very small invisible marks remain, at points where vesicles were in an advanced stage.

I saw this patient two days ago and it was hard for me to detect in him any trace of the disease.

The other two cases treated by me were more or less clinically identical. One case was at the seventh day of the disease; the other, at the fourth.

The treatment consisted of exposure to the action of the ray as often as the comfort of the patient required.

The lamp was kept distant from the surface of the body from five to nine inches, according to the tolerance of the patient.

Equally satisfactory results were obtained in the treatment of these other cases.

I devised a way of giving patients the benefit of the ray, simultaneously, all over the body. Three lamps of 110 voltage each were placed on a stand so that the exposed surface extended from the head to the feet.

In this way one lamp radiated the face and the upper part of the chest and extremities; one lamp the abdomen and hands, and the other the feet and thighs. As soon as the patient felt too much heat, and could not bear that sensation any longer, I advised him to turn and expose the other side and so on until relief was obtained.

The lamps were kept from five to nine inches from the surface to be treated, but during sleep I advised keeping the lamp at least one and one-half feet away from the surface of the body.

A large sheet covered the apparatus in order to avoid dispersion of the rays. Good effects were also obtained by using an ordinary single lamp. The only objection I have to make is that one must constantly change the position of the single lamp so that all regions can be treated.

The benefit of the triple combination is greater, because the patient does not need to make any effort in moving the lamp, thus preventing fatigue.

Conclusion: From the experience obtained in treating these three cases I believe that we

have in the violet ray a new and efficient weapon to combat the very distressing sensations caused by smallpox. Furthermore, a powerful agent has been found which, if applied before pustulation has occurred, will almost completely prevent the pox marks.

It seems that the earlier the ray is used the shorter the course of the disease will be, and the constitutional symptoms will be milder.

Considering the great relief which appeared to follow this very simple agent and the inexpensiveness of its application, I believe that this treatment will soon become general.

So far as literature on this subject is concerned, I failed to find any article dealing with the treatment of variola by means of violet ray ever before published.

Medical Progress.

PROGRESS IN SYPHILOLOGY.

By AUSTIN W. CHEEVER, M.D., BOSTON.

THREE CASES OF SYPHILITIC INFECTION DURING LABOR.

LEMHOLT¹ reports three cases of this condition, so far very rarely reported in the literature. In all three cases the fathers of the infants had acquired syphilis sometime during the last three months of the wives' pregnancies, the mothers developing symptoms of syphilis immediately preceding, during, or immediately after labor. Typical chancres developed on the infants' heads, followed by typical acquired infections.

REINFECTION IN SYPHILIS.

Recently there have been increasingly numerous reports of reinfection; Jeanselme and Althabegoity² report a case treated with 300 injections of benzoate of mercury and occasional injections of arsphenamin. Up to the time of the appearance of the second chancre, which was not at the site of the first, he had had five negative Wassermann tests. Treponemata were found in the new chancre. This seems to be a genuine case of reinfection.

EXPERIMENTAL SYPHILIS IN MAN.

Pinard and Leguignand³ relate the case of a man who inoculated himself with syphilis in order to prove that he had not had it: a chancre appeared in which treponemata were found. He had 8.5 gm. of arsphenamin followed by a negative Wassermann reaction. After two failures he succeeded in inoculating himself again and producing a typical chancre in which treponemata were found, and followed by a papular rash and sore throat. He then had 0.6 gm. of arsphenamin weekly for ten out of twelve

months. Now having a negative Wassermann test, he tried four more times to inoculate himself, at last producing after thirty days a new chancre, followed by a papular syphilide.

THE RESISTANCE (OR IMMUNITY) DEVELOPED BY THE REACTION TO SYPHILITIC INFECTION AND SOME OF THE EFFECTS OF THE SUPPRESSION OF THIS REACTION.

Under this heading Brown and Pearce⁴ describe their results in rabbits of removing the primary lesions; there was a considerable intensification of the disease. Carrying that reasoning over to the human, it would seem not only useless but probably even harmful to remove primary lesions.

EFFECT OF SUNLIGHT ON A SYPHILITIC EXANTHEM.

Much has been written about sunlight in tuberculosis, very little about sunlight in syphilis. Rasch⁵ reports an interesting case of a girl with a lenticular syphilide which failed to appear on the face, neck, and parts of the chest which had been exposed to strong sunlight above a very décolleté gown. He thinks it is the actinic rather than the heat rays that are responsible for this, as it is well known that men exposed to heat, as stokers, have a marked exaggeration of these lesions on the exposed parts.

NEUROSYPHILIS WITH NEGATIVE SPINAL FLUID.

Solomon and Klauder⁶ describe and discuss a group of cases of definite neurosyphilis with negative spinal fluids, fitting mostly into the group of vascular neurosyphilis, but also of syphilitic cerebral nerve palsies, cerebral gumma, syphilitic epilepsy, syphilitic spastic paraplegia, syphilitic psychoses. They state that it is often difficult to decide in these cases, which have negative spinal fluids yet with definite clinical evidence of central nervous system involvement, whether they are cases which at no time have positive fluids, and need and often react well to treatment, or whether they are "burned out" cases, cases of former activity, and really only cases of scarring, and consequently to be but little helped by any treatment.

SPINAL DRAINAGE WITHOUT LUMBAR PUNCTURE.

Corbus, O'Connor, Lincoln, and Gardner⁷ have worked out a new application of the previously known fact that intravenous injections of hypertonic saline solutions cause an initial rise in the cerebro-spinal fluid, followed by a fall in this pressure often to below zero, followed by a gradual rise to normal. Apparently the increased osmotic properties of the blood plasma after the addition of the hypertonic solution causes fluid to be drawn rapidly into the bloodstream from all possible sources, including the cerebrospinal fluid.

The technic of the clinical application of this principle is as follows: patients were admitted about 8 A. M., prepared as usual for arsphenamin. At 10 A. M., 100 c.c. of 15% saline solution was given intravenously by the gravity method. Immediately following the injection, the patient is conscious of a feeling of warmth which gradually increases, but never to an uncomfortable degree, and lasts about ten minutes. No food was permitted at midday. After six hours, 0.9 gm. neoarsphenamin was given intravenously. At first all patients were kept in bed for thirty-six hours, but later some were permitted to go home by nine o'clock the same day. In none were there untoward complications. Lumbar puncture may be done without harm if one desires to study the spinal fluid.

VIABILITY OF SPIROCHAETE PALLIDA IN EXCISED TISSUE AND AUTOPSY MATERIAL.

Lacy and Haythorn⁸ report the finding of motile spirochaetae in the blebs on a congenital syphilitic baby kept in a refrigerator twenty-six hours before autopsy: in excised chancre, seven days after removal; in serum from a chancre sealed and kept at room temperature, for 121 days; in saline suspension of rabbit's testicle, both at room temperature and in the refrigerator, for 58 days; inoculation of rabbits' testicles with some of these was positive after 24 hours; attempts at inoculation with completely dried syphilitic material were uniformly unsuccessful.

A STUDY OF THE SPINAL FLUID IN A LARGE SERIES OF CASES OF SYPHILIS IN ALL STAGES.

Wile and Marshall⁹ present an analysis of 1869 cases of syphilis on whom lumbar puncture had been done, and bring out several interesting points, especially the strikingly high percentage of neurosyphilis in cases of syphilitic alopecia, iritis, and pigmentaries of the neck, about 70% to 73% in the first and second groups, about 55% in the third. In spite of the general belief that there is an inverse ratio between cerebrospinal involvement and other forms of syphilis, about 30% of the cases of late syphilides of the skin, bones, and viscera had definite central nervous system involvement. Another interesting point is the large percentage, about 28, of asymptomatic neurosyphilis in the indefinite latent stage.

A NEW LUMBAR PUNCTURE NEEDLE.

Hoyt¹⁰ describes a new needle which is claimed on good theoretical grounds to prevent post lumbar puncture headaches. A needle with obturator similar to the usual type, fitting the Luer syringe, is used as usual up to the point of penetrating the meninges; then the obturator is withdrawn and a much finer needle fitting the Record syringe and enough longer to pene-

trate the meninges is introduced within the larger one. This should tear so small an opening in the meninges that the leakage would be slight or none. It may be used for intraspinal therapy as well.

EXPERIMENTAL STUDY OF THE LATENT SYPHILITIC AS A CARRIER.

Ebersson and Engman¹¹ have made some valuable contributions to the study of latency. From five cases which appeared to have been latent for from one to thirteen years and had either had no treatment at all or none for two years, the authors isolated by rabbit inoculation living treponemata from inguinal glands and semen. Blood and other body fluids failed to give positive results.

WASSERMANN TESTS WITH SECRETIONS, TRANSDATES, AND EXUDATES IN SYPHILIS.

Klauder and Kolmer¹² found 3 positive Wassermann tests in 19 specimens of milk from known syphilitics; 1 weakly positive in 20 specimens of saliva; 1 moderately positive in 30 specimens of seminal fluid; 5 doubtful tests in aqueous fluid from the anterior chamber of the eye; all of 11 specimens of exudates and transudates were positive; all surface fluids from a number of chancres were positive; all of a number of specimens of saline extract of syphilitic nodules from testicles of rabbits were positive.

THE WASSERMANN TEST PERFORMED WITH CHANCRE FLUID AS AN AID TO THE EARLY DIAGNOSIS OF SYPHILIS.

Klauder and Kolmer¹³ give their technic as follows: when possible they aspirated the surface fluid directly with a fine-tipped pipette similar to a medicine dropper; when not enough fluid could be obtained that way, they placed a few drops of physiological saline solution on the chancre and aspirated the whole fluid after a short time, getting thus a fluid of unknown concentration; yet the results were positive in twelve out of fourteen chancre fluids. Positive results were obtained in a chancre on which a mercurial had been used, making the dark field examination negative, and in which the blood Wassermann had not yet become positive. It is, therefore, a definite aid in the diagnosis of early syphilis.

SILVER ARSPHENAMIN.

The reports during the last year by American syphilologists have not been especially favorable to silver arsphenamin. Guy and Jacob¹⁴ report on their use of the drug in 100 cases and consider that silver arsphenamin, weight for weight, is more toxic than arsphenamin, and in the dosage ordinarily employed is a less effective spirocheticide. Michelson and Siperstein¹⁵ believe that it clears up clinical manifestations in smaller doses than others of the arsphenamin

group, but are doubtful as to other advantages. Fordyce,¹⁶ reasoning from the use of 1800 doses, considers silver arsphenamin as a valuable drug because of its greater freedom from reactions, but is not ready to consider it any more curative than other arsenicals, though possibly more active in clearing up early lesions.

THE INFLUENCE UPON TOXICITY AND TRYPA NOCIDAL ACTIVITY OF SHAKING ACID AND ALKALINE SOLUTIONS OF ARSPHENAMIN AND SOLUTIONS OF NEOARSPHENAMIN IN AIR.

Schamberg, Kolmer, and Raiziss¹⁷ carefully tested out the effect of shaking these drugs for one minute and for ten minutes longer than necessary to complete solution, and found that shaking both the acid and alkalinized solutions of arsphenamin increased the toxicity and the trypanocidal activity; that one minute's extra shaking of neoarsphenamin increased the toxicity greatly without increasing the trypanocidal activity, while a ten minutes' extra shaking increased the toxicity enormously. Different lots and brands differed considerably as to their liability to oxidation.

KEEPING QUALITIES OF MARKET SAMPLES OF NEOARSPHENAMIN WHILE IN THE AMPOULE.

Roth, U. S. Public Health Service,¹⁸ finds commercial neoarsphenamin relatively unstable in the ampoule and suggests that the date of manufacture should be placed on all ampoules and that neoarsphenamin be kept at icebox temperature.

HELIOOTHERAPY IN SYPHILIS.

Hesse,¹⁹ reasoning from the long known beneficial effect of sunlight in tuberculosis, feels that it should be of real use in syphilis: in correcting the anaemia which may be present, in avoiding the possible depressing effect of drug medication, in stimulating metabolism, possibly in helping to prevent involvement of the internal organs, as seems to be the case in tuberculosis. He suggests filling the gaps in drug treatment with heliotherapy.

A NEW TREATMENT OF SYPHILIS WITH TARTROBISMUTHATE OF SODIUM AND POTASSIUM.

Rabell²⁰ reports in the name of Levaditi, bismuth salts as efficacious in the treatment of syphilis. After experimenting on rabbits, he used on 110 human cases of syphilis in all stages subcutaneous and intramuscular injections of tartrobismuthate of sodium and potassium suspended in oil. The only untoward result (and this is frequent) is stomatitis, with an effect on the gums like that of lead poisoning, and closely resembling that of mercury, but much milder, preventable by proper precautions, and easily cured. The urine remains practically normal. He states that it has the

advantage over arsenical preparations of having less toxic effects and also of being prepared with less difficulty and, therefore, more economically. Insufficient time has as yet elapsed for the demonstration of a permanent cure, but the results up to date have been very striking as regards the disappearance of lesions and of spirochaetae. The medicament has been put on the market under the name of trepol, in boxes containing 12 ampoules; each of these contains a dose of 10 cg. per cubic centimetre, in an oily base. The doses are made in amounts of 3 and 2 cc. in a series of 6 injections, the first three containing 30 cg. and the last three containing 20 cg. of the salts of bismuth.

THE TREATMENT OF SYPHILIS BY MERCURY INHALATIONS.

Cole, Gericke, and Sollman²¹ report on an investigation of mercury inhalation in syphilis, very carefully and thoroughly carried out and find that there is no advantage in this method of giving mercury; that it has, on the contrary, a serious disadvantage of indefinite dosage, and the special danger of respiratory irritation.

TREATMENT OF LATE SYPHILIS.

Stokes²² in an excellently written paper on the treatment of late syphilis concludes as follows: The treatment of syphilis should not be parcelled out in segments, each self-sufficient and governed by its own laws. Just as we are finding that early syphilis is no longer localized, even at the earliest appearance of the primary lesion, so we shall find as the intensity of our study increases that late syphilis does not begin in the first decade, but in the first hour. Preventing the transmission of the disease in its earlier stages, and forestalling the individual tendency to complications based on the peculiarities of the strain of parasite, the host, and the method of treatment, is the whole problem of syphilis. Forestalling implies detection, so that an increasing diagnostic alertness, a development of methods for detecting the earliest and not the late signs of pathologic change in vital organs and tissues, is not mere diagnosis, but a part of effective treatment. For all our so-called prophylactic efforts, nothing will prevent the development of late complications in a certain group of patients who present the fatal combination of predisposed soil and tropic organism. It is equally true that an even smaller group of patients will master the infection for themselves, irrespective of our interference. Between these two extremes will come those whom we have radically cured, those whom we have managed to place in commensal relation to their infecting organism, those whose immunity we have broken by treatment measures whose potentialities for future harm as well as present good we do not yet understand, and those whom we have destroyed outright by treatment itself. The study of the interrelation of these groups

is one of the most complex problems of the medicine of today. Its solution will not be accomplished by a mental or physical separation of the various phases of syphilis and syphilo-therapy into air-tight compartments, each with its own technic, ideals and aims. Only that mode of approach will leave a significant impress on our future knowledge which envisages the entire disease, employs one or two methods in a large series of cases over a period of many years, records the results, and which, by lifelong observation and periodic complete re-examination, detects impending serious pathologic change, and evaluates in detail and with accuracy the response of parasite and host.

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- ²⁰Rev. Med.-Chir. de Brazil, 29:476, Nov., 1921.
- ²¹Archiv. of Derm. and Syph., 5:18, Jan., 1922.
- ²²Archiv. of Derm. and Syph., 4:6, Dec., 1921.

Book Reviews.

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. Contributors: E. Wyllys Andrews, F.A.C.S., A.M., M.D., Chicago; James Berry, F.A.C.S., Joseph Blomfield, O.B.E., B.A., M.D.; W. Langdon Brown, M.A., M.D., F.R.C.P.; John D. Comrie, M.A., M.D., F.R.C.P.E.; Carey F. Coombs, M.D., F.R.C.P.; William E. Fothergill, M.A., M.D., F.R.C.P.; Ernest W. Hey Groves, M.S., M.D., F.R.C.S.; O. C. Gruner, M.D., M.R.C.S.; J. A. Hadfield, M.A., M.B., Ch.B.; L. W. Harrison, D.S.O., Brev.-Col., R.A.M.C., M.B., Ch.B., M.R.C.P.E.; C. Thurstan Holland, D.L., M.R.C.S., L.R.C.P.; P. J. Ramsey Hunt, M.D., New York; Robert Hutchison, M.D., F.R.C.P.; Frederick Langmead, M.D., F.R.C.P.; Arthur Latham, M.A., M.D., F.R.C.P.; A. E. J. Lister, Lt.-Col. I.M.S., M.B., B.S., F.R.C.S.; E. G. Graham Little, M.D., F.R.C.P.; J. P. Lockhart-Mummery, M.B., F.R.C.S.; Joseph Priestley,

B.A., M.D., D.P.H.: C. Sanford Read, M.D.; Sir Leonard Rogers, C.B.E., Lt.-Col. I.M.S., M.D., F.R.C.P., F.R.C.S., F.R.S.; John D. Rolleston, M.A., M.D.; James Sherren, C.B.E., F.R.C.S.; Sir John Thomson Walker, O.B.E., M.B., F.R.C.S.; Sir W. L. DeC. Wheeler, B.A., M.D., F.R.C.S.I., Andrew J. M. Wright, M.B., F.R.C.S. Associate Editors: CAREY F. COOMBS, M.D., F.R.C.P. (Medicine); A. RENDLE SHORT, M.D., B.S., B.Sc., F.R.C.S. (Surgery). Fortieth Year. 1922. New York: William Wood & Co.

Preface.—"In this, the fortieth volume of the Medical Annual, we have made some slight alteration in the arrangement of the contents which we think will be of convenience to our readers.

"The articles hitherto included under *Materia Medica* and *Therapeutics* have been incorporated in the body of the work and will be found in their alphabetical order. This includes the articles on *Radiotherapy*, *Electrotherapeutics*, *Non-Specific Protein Therapy*, and also the therapy of the hormones, which is considered under the title 'Endocrinology.' Further reference to these methods will be found under the headings of the diseases in which they are employed.

"The Introduction gives a concise summary of the principal facts and correlates them, so that the reader can readily refer to the various reports on any subject which interests him, and also quickly gather what is being done in other departments.

"It has always been our aim that the Annual should not be a mere digest of the work of the year, but present it in the form of reviews by eminent physicians and surgeons, so that our readers may have the advantage of their special knowledge and experience; and also to publish original articles which will render information on subjects under discussion complete and up-to-date.

"We are grateful to the entire staff of writers who have so ably cooperated in carrying out our ideal of making the Annual of material and permanent use to our readers."

To those who are familiar with the International Medical Annual the present (1922) edition is simply an old friend returning, and welcome. To those, and there are still too many, who do not know it, both its form and substance, and the fact that it has been published annually for forty years, a careful examination and the almost inevitable subsequent purchase of it will bring a welcome and long-continued sensation of surprise, pleasure and "value received."

Having quoted rather extensively both from the title page and the preface of the book, the reviewer will content himself by saying that within its 500 well printed pages it contains a

surprisingly large number of facts, admirably set down by its thirty contributors; and besides this, the opinion and judgment of the contributors upon these facts which they have collected, the book covers almost the entire field of Medicine and is neither too large nor too heavy. Would that we had a much larger number of similar textbooks.

The type is small but sharp; the plates and cuts excellent, both in outline and color; the book is admirably bound.

Transactions of the American Surgical Association. Volume the Thirty-ninth. Edited by JOHN H. JOHNSON, M.D., Recorder of the Association. Printed for the Association. For sale by William J. Dornan, Philadelphia. 1921.

This volume, of familiar form, size and color, consists of fifty papers read before the annual meeting at Toronto in January, 1921.

About 300 of its 800 pages concern fractures. A large proportion of the remaining papers relate to abdominal conditions, and include Vaughan's case of successful ligation of the abdominal aorta, the patient being alive one and one-quarter years later, working ten hours a day as a bricklayer and occasionally going on a spree to vary the monotony of life in Washington, D. C., in general, and bricklaying in particular. Vaughan gives a brief synopsis of the nineteen cases in which the abdominal aorta has been tied since Sir Astley Cooper first performed the operation on June 25, 1917.

The transactions of the American Surgical Association are always of marked interest and of great value, because they present the results and opinions of the more mature group of the best American surgeons.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI
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WILDER TILSTON
BRYANT D. WETHERELL

SUPPOSED POISONOUS QUALITIES OF THE GRANARY WEEVIL.

DEFFEL. (*American Journal of Tropical Medicine*, Vol. ii, No. 3, May, 1922) as a result of extensive experimental work with animals, concludes that the granary weevil contains no cantharidin and cannot be used as a substitute for the blister beetle, and that there is no evidence to indicate that it is responsible for cases of poisonous flour.

[G. C. S.]

CHOLERA PROPHELYSIS.

MACKIE and TRASER (*Ind. Med. Gazette*, April, 1922) report results of laboratory studies of the cholera vibrio made during the British campaign in Mesopotamia. Special attention was given to the relation of the fruit season to the incidence of the disease. Experiments showed that the inside of unripened fruit, ripe or unripe, is naturally sterile. The reaction of melons and of tomatoes was found to be strongly acid and that of cucumbers mildly acid at all stages of ripening. The temperature of these fruits is lower than that of the surrounding atmosphere by 14° F. in the case of the melon, 16° F. in the case of the cucumber, and 6° F. in the case of the tomato. Temperature regulation of fruit seems to depend on the physical condition of juiciness and porosity, so that fruit maintains its temperature in obedience to the same laws which determine that of cold-blooded animals. In any case, the temperature of the fruit in hot weather is favorable to the vitality of the cholera vibrio. Despite the natural acidity of the fruit, this organism is able to live and probably to multiply on the cut surface of a melon for as long as one week. It can be recovered from melons seven days and from cucumbers and tomatoes three days after they have been inoculated. Melon pulp appears to be a particularly suitable medium for the growth of cholera germs.

The writers conclude from their studies that troops should be advised as follows:

1. Undamaged melons, cucumbers and tomatoes may be eaten with safety.
2. Ruptured or damaged fruit, especially sliced melons which have been exposed to the dust and fumes of the bazaar, should be strictly avoided.

[L. D. C.]

THE TREATMENT OF YAWS.

VISWALINGAM (*Ind. Med. Gazette*, May, 1922) describes yaws as it occurs in Malaya and outlines its present-day treatment. This disease, which resembles syphilis in many ways, is caused by the *Treponema pertenue* and is spread by direct or indirect contact. Inoculation takes place on an abrasion or some other skin lesion anywhere on the body, and the primary lesion is an elevated papule which later becomes granulomatous. The scab wears off, leaving an ulcer and eventually a scar. This primary sore may last as long as two years.

The secondary manifestations appear in successive crops for several years. They consist of granulomata similar to the primary lesion and may cover the entire body. Ulcers may be seen about the lips, palate and pharynx and in the nose. There is dactylitis of the fingers and toes and chronic periostitis of the lower ends of the tibia, ulna, radius, humerus and phalanges. In some cases the joints are swollen and tender. Irregular fever is not uncommon.

Tertiary skin lesions are generally confined to the soles of the feet and palms of the hands, and consist of an exfoliative dermatitis with cracks and fissures. After desquamation the skin loses its pigment, leaving a condition resembling leucoderma. Gummata of the bones and skin sometimes ulcerate and leave deformities.

The prognosis of yaws is very good, as the disease can be arrested in all its stages. Novarsenobillon is the drug, and two or three intravenous injections are sufficient, the total adult dose being 0.9 gm. Toxic symptoms may develop after five days and should be watched for. They consist of purpuric spots, erythematous patches, epigastric distress, nausea, vertigo, and rarely collapse.

[L. D. C.]

Miscellany.

INFORMATION SERVICE OF THE ROCKEFELLER FOUNDATION.

The International Health Board of the Rockefeller Foundation has entered into a co-operative arrangement with the Health Organization of the League of Nations whereby the Board will provide a sum not to exceed \$32,840 a year for a period of five years for the purpose of maintaining an international epidemiological intelligence service. The Board will also provide a sum not to exceed \$60,080 a year for three years to put into effect a scheme for the international exchange of public health personnel to be conducted under the auspices of the Health Organization of the League.

The Health Organization of the League of Nations was created in September, 1921. Its principal function at present is to conduct an international epidemiological information service and in general to promote international co-operation in the control of epidemic diseases. Incidentally it will advise the League in matters affecting health, and co-operate with the International Labor Organization in promoting industrial hygiene.

Since its establishment the intelligence service has kept all governments informed as to the status of epidemics of typhus, intermittent fever and cholera which have been sweeping westward from the famine-stricken regions of Russia. Negotiations among European governments looking to the adoption of sanitary conventions for the control of epidemic diseases have been initiated by the Health Organization and much progress has been made. It has also undertaken to promote the international standardization of vaccines and serums.

For the first time in the history of the world there is an agency for taking steps to control epidemics before they get out of hand. The intelligence service of the League of Nations is of vital importance to the people of all countries. It is expected that by the end of the five-year period for which funds have been provided by the International Health Board the epidemiological intelligence service will have become so efficient and valuable that the various national governments will regard it as indispensable and provide funds for its further maintenance.

The exchange of public health personnel is expected to reinforce the other activities of the Health Organization by promoting mutual acquaintance, understanding and good-will, on which effective international co-operation must be based. Interchange of health officials will be arranged not only for observation but for definite periods of service which will result in actual exchange of experience. The proposed system of exchanges will be put into effect first in Europe and may be extended as opportunity offers to other countries throughout the world.

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VITAL STATISTICS OF MASSACHUSETTS FOR 1921.

THE report of the vital statistics of this state, as prepared by the secretary of the commonwealth and edited by the state registrar of vital statistics, has been issued. It is interesting to note that "Massachusetts was one of the first American states in which dependable registration was enforced." The earliest legislation in this state relating to this subject having been adopted by the Bay Colony in 1639. As late as 1880 only two states, Massachusetts and New Jersey, and the District of Columbia, together with a number of cities in non-registration states, were included in the registration area. The certificates of death throughout the registration area of this country are uniform. The death rates are based on a comparison of total deaths with the aggregate population. These rates vary according to the character of the population; for example, there is a higher rate among males than is found with females and where a community is largely made up of persons in those periods of life in which the death rate is normally high, the statistics vary accordingly. Other factors enter into the rates, such as the location of hospitals; for, a person sent from one locality to another for hospital treatment, who dies, swells the rate for the municipality in which the hospital is located and relieves the town from which he migrated.

Other factors, too numerous to mention in detail, also affect the comparative importance of rates in different sections and should be taken into account when studies are based on statistics.

Referring to the death rate in the registration area, the public health reports show a decline up to and including 1920, as follows:

The gross death rate from all causes in the original registration states declined from 17.2 per 1,000 in 1900 to 15.6 in 1910 and 13.9 in 1920, a decrease of 9.3 per cent. in the first decade and 10.9 per cent. in the second decade. If we take into consideration the fact that a secondary, but severe epidemic of influenza-pneumonia occurred in the early part of 1920, the indicated decline from 1910 to 1920 is less than it would have been had 1920 been a normal year. In 42 cities in the United States having a population of over 100,000, the excess death rate during the 1920 epidemic period from influenza-pneumonia alone was about 1.13 per 1,000. If the same excess may be presumed to have occurred in these original registration states, the death rate in 1920 would have been approximately 12.8 per 1,000, and the decline from 1910 would have been about 18 per cent.

The Massachusetts report shows a similar improvement, but the 1921 report for the whole area is not available for comparison with the 1921 report of Massachusetts.

Number of Deaths and Death Rates in this State: There was a decrease in the mortality of 1921 as compared with that of 1920, the number of deaths occurring during the calendar year 1921 being 47,780, a decrease, as compared with 1920, of 5,852. Based on the estimated population of 1921 of 3,885,836, these deaths correspond to a rate of 12.3 per 1,000 population, as compared with 13.9 in 1920. This rate for 1921 is the lowest ever recorded in Massachusetts.

During the last two ten-year periods the death rate of the commonwealth has fallen from 18.2 in 1900 and 16.2 in 1910, to 13.9 in 1920.

Of the 47,780 deaths in 1921, 7,005, or 14.7 per cent., were of infants under one year of age. It is a singular fact that even with infants the mortality is higher among males than is the case with females, the per cent. of male infant deaths being 58. No explanation has been given for this larger mortality in this class.

The winter months record the higher mortalities, March, January and February presenting the largest figures in the order named.

The infant mortality in 1921 was 75.9 per 1,000 live births, which is the lowest rate ever recorded in this state.

The highest proportion of deaths occurred in the early period of life, for 39.5 per cent. of all deaths under one year of age occurred in the first week, the first day showing a mortality of 19.2 per cent., and 79.9 per cent. of the infant deaths occurred in the first half year.

The causes of early death are prematurity, congenital debility, malformations or injuries

received at birth. These account for 77.5 per cent. of those infants that died less than one week after birth.

Of the 47,780 deaths, pneumonia was the cause of 4,200; heart disease, 7,197; tuberculosis, 3,867; apoplexy, 4,262; malignant tumors, 4,645; Bright's disease, 3,157; diphtheria and croup, 607. Typhoid fever fell to 119.

The number of deaths investigated by medical examiners is 6,368. Post mortem examinations were conducted in 621 of these cases.

Under classification of the puerperal state there were 580 deaths; of these there were 48 due to accidents of pregnancy, 20 to abortion, 11 to ectopic gestation; others under this title, 17; puerperal hemorrhage, 74; other accidents of labor, 92 Cesarean section, 35; other operations and instrumental deliveries, 18; unclassified under operations, 39; puerperal septicaemia, 178; puerperal phlegmasia alba dolens, embolus and sudden deaths, 56; puerperal albuminuria and convulsions, 131; and one following childbirth not defined.

In explanation of the sources of error in mortality statistics, it is claimed in the report that inaccuracy on the part of physicians is the chief element. In all probability if any considerable number of physicians were given an opportunity to express opinions, some criticism of the requirements outlined on the blanks would be submitted. The questions on the blanks are to some extent like those sometimes propounded by a lawyer to a witness, for it is not always possible for a physician to answer the questions and have the satisfaction of feeling that he has given all the information which he would like to impart. The suggestion also appears in this report that a physician may, at the request of the family of the decedent, deliberately withhold a statement of the true cause of death. If this is so, and it probably is believed to be so, or it would not appear in a public document, some person, official, or department, is blameworthy in allowing this source of error to be continued. Vital statistics are of vital importance and should be as nearly free from error as it is possible for human agents to make them so. Many changes have taken place in medical nomenclature and medical knowledge is being constantly revised and a return could be devised which would enable students of statistics to acquire accurate information. Under the present system the possibility of faulty interpretation exists, to some extent.

SCHOOL HEALTH SUPERVISION.

In the *American Journal of Public Health* for June, 1922, Dr. S. Josephine Baker presents a history of school medical inspection. Boston inaugurated the first system of this sort in 1894, which was designed to limit the spread of disease. This consisted of daily visits to schools

by physicians for the purpose of inspecting children suspected by the teacher of being infected by a contagious disease. Philadelphia adopted this custom in 1896 and New York a year later. In 1905 New York City adopted a program which included physical examination of school children for the purpose of discovering physical defects. This type of school work is required in five states and is permitted in 29. Some other states have school physicians that carry on through diplomatic means more or less work of this kind. These methods led up to health control of school children, including teaching of health habits, sometimes through officials and in some cases by voluntary organizations. The extent of physical examinations was determined in many instances by the amount of money appropriated, sometimes being repeated during school life, but few communities have ever appropriated enough money to make a reasonable number of examinations of all the pupils. Many authorities feel that every child should be carefully and thoroughly examined every year, but even where this requirement exists the examinations are seldom complete and are apt to consist of inspection rather than examination, for great expense is involved in general careful examination, so that for some time to come the real task is to get the best possible results within the appropriations.

Dr. Baker shows that reports indicate quite universally that 35 per cent. of the children of school age have one or more physical defects, such as malnutrition, defects of hearing, lung disease, hypertrophied tonsils, adenoid growths, and defective vision; and if defective teeth be added the percentage would be much higher, for it is found that among certain groups even 65 per cent. have defective teeth. Practically every child needs dental care during school life, so that oral hygiene should be an essential part of health work among this group.

It is obvious that in order to correct physical defects the detection should be early.

A study of 356,292 children of the city of New York shows that school life does not have a bad effect on defective hearing and pulmonary and cardiac diseases, but, on the other hand, nervous diseases and defective eyesight seem to become more frequent during school life.

The conclusions presented by Dr. Baker are as follows:

1. The most important physical examination to be made in the school life of the child is the one occurring at the time the child enters school for the first time.

2. In order to make the work of health supervision of school children effective, a complete physical examination of each child should be made before the 8-to-10-year period. If this can be done with 100 per cent. efficiency, combined with follow-up that is 100 per cent. effective and 100 per cent. of treatments obtained, it should not be necessary to make regular

physical examinations after the 8-to-10-year period, reliance being placed after that time upon the routine inspection of the children in the classroom. This routine inspection will permit the nurse, doctor or teacher to pick out the cases of physical defects that have been in any way overlooked during routine physical examinations or which have originated after the 8-to-10-year period.

3. An annual test for defective vision is desirable.

4. Unless the amount of money appropriated for school medical inspection is large enough to allow a complete and thorough physical examination each school year, the officials in charge of such work are not justified in spending any money in having physical examinations made after the 8-to-10-year period unless the full health needs of the children below that age period have been met.

5. A logical deduction that might be drawn from this study is that great emphasis should be placed hereafter upon the pre-school age period as the time when physical defects should be prevented or corrected.

6. To sum up the matter, this study would seem to show that the expenditure of time and money to make annual physical examinations of school children is not warranted and seems to be unnecessary. Analysis of the age and sex incidence of physical defects in this study shows that proper and adequate physical examinations made in the early life of the school child—that is, before the 8-to-10-year period—are essential, and if these are properly followed up and suitable treatment obtained, the appropriations for this work will be spent in the most economical way, the child's health will be more thoroughly protected, and future disease and the sequelae of physical defects be more adequately guarded against than by any of the present methods of school health supervision.

These conclusions will be a source of comfort to those persons who feel very strongly that physical examinations of children should be conducted upon entrance to the public schools. This plan is, however, a bone of contention, for certain of our people feel that the personal rights of the child should not be invaded through physical exposure, and by others that extension of state supervision of the health of children may lead to the development of plans covering some delicate problems of life and morals.

Although more attention to defectives and instruction in health matters will probably never lead the majority to favor attention to sex hygiene, that is so much feared by many, that progress must of necessity be slow until greater confidence in the wisdom of our school and health departments shall have been developed. It may be possible to interest large numbers of parents in the physical examination of children at regular intervals by the family phy-

sician. This course would be productive of good results and in time would bring about better average health among adults. It may be utopian to expect parents to provide for that kind of investigation for children which is not generally sought by adults for their own safety. By constantly dwelling on the importance of the scientific study of every individual a sufficient response may follow that will lead to better average conditions.

THE STATE ASSOCIATION OF BOARDS OF HEALTH.

THE summer meeting of this organization was held at the Atlantic House, Nantasket, July 27. The meeting was presided over by Captain William J. Young, agent of the Springfield Board of Health. Three new members were elected. Dr. Champion of the State Department of Health outlined the program for maternal and infant welfare work. The plans for the future are for a continuation and amplification of the work which has been carried on for several years. There seems to be some misunderstanding relating to the nature and scope of the efforts made by the State Department, so that a recital of facts and purposes is pertinent at this time.

The Department has never been favorable to the benefit laws and practices of Italy, France, England and Germany; for the present policy of this state is not based on the insurance benefit plan but rather the dissemination of information and advice. In speaking of records relating to maternal and infant mortality the speaker spoke of the accuracy of the New Zealand records and added that Massachusetts' records are given high rank in Washington.

A review of attempts at legislation was given, and the opinion expressed that we do not need poor relief legislation relating to this class of patients in this state. He paid high tribute to Dr. Alfred Worcester and his committee and felt that the efforts of this group of public servants were not appreciated, because the time given to the commission was so short and the problem so complicated that service involved great concentration and sacrifice of time and strength. He did not feel that the Sheppard-Towner Act is the best solution of the problems involved.

In order to carry on the work Massachusetts has appropriated \$15,000 for four months' work and \$30,000 more for the remainder of a year, to be expended by the Division of Hygiene in the State Department of Health. Speaking of other states, reference was made to Maine, which has appropriated \$5000 for this work, but Rhode Island and Illinois have not acted thus far. New York has appropriated a very large amount, but has not seen fit to adopt the

Sheppard-Towner Act. The prosecution of this work means that in order to secure effective action local authorities must cooperate. Reference was made to the claim that maternal mortality has increased 70 per cent. in the last 16 years, and the need of better vital statistics was emphasized, for reports of deaths do not always convey the information sought.

The question was raised concerning the reasons for higher mortality rates, and certain facts relating to infant mortality were especially emphasized, for although there is a general claim that infant mortality is decreasing in Massachusetts, the mortality of early infant life remains the same and there has been no appreciable change in the number of stillbirths, for they vary only a fraction of one per cent. from year to year. The great outstanding factor relating to infant mortality seems to be ignorance of hygiene, and it is hoped that efforts which are to be made will reduce the mortality of infants, especially of those under one month. Great hope was expressed that the money secured through taxation would show satisfactory results soon.

Dr. Charles P. Sylvester, of the Hull Board of Health, distributed a pamphlet relating to the control of the mosquito nuisance.

There were 38 representatives of different boards present, but the attendance was not as large as on some previous occasions. It was felt that the meeting was instructive and stimulating.

THE EFFICIENCY OF ARSPHENAMINE AND NEOARSPHENAMINE.

ALTHOUGH arspenamine and neoarsphenamine have been in use for about twelve years, doubt has been expressed as to the relative efficiency of these remedies. Opinions of clinicians have been published, but have not been supported by scientific experiments which are conclusive. The difficulties incident to a comparison of the parasitocidal power of these agents, when used on human subjects, are very great, but the importance of the question involved has led Carl Voegtlin, Professor of Pharmacology, and D. W. Miller, Scientific Assistant, U. S. Public Health Service, to make an experimental study of the value of these two compounds. They used rats infected with the trypanosoma equiperdum. This is the parasite which causes the so-called horse syphilis and which produces a chronic disease with a definite pathology. Albino rats quickly succumb to infections by this parasite, the multiplication of the parasites proceeding almost according to a fixed rate, as shown by a double number in approximately seven hours. A given dose of the drug may be depended upon to kill a certain number of parasites. The tests were applied to 13 lots of arspenamine and 15 lots of neoars-

phenamine. The results showed that the parasitocidal power of arspenamine of different manufacture is remarkably constant, but that there was a great variation in the results obtained by the use of neoarsphenamine.

In the report reference is made to the work of Dale and White of the National Institute of Medical Research in London, in which a record is given of the use of mice, which is confirmatory of the conclusions which are formulated by Voegtlin and Miller, as follows

1. The results obtained in this investigation confirm previous data from this laboratory to the effect that arspenamine of different manufacture is fairly uniform in parasitocidal power, whereas neoarsphenamine shows great variations.

2. The toxicity of the average commercial arspenamine and neoarsphenamine manufactured at the present time is considerably lower than that of preparations found on the market two years ago.

The full account of the technic employed may be found in The Public Health Reports under date of July 7, 1922.

RURAL HEALTH SERVICE.

THE Rural Sanitation Office of the United States Public Health Service reports that there are 203 counties throughout the United States that have a local health service under the administration of whole-time county or district health officers. Massachusetts is listed as having only one and that is in the Cape Cod District. The rural population of Massachusetts is recorded as 202,108, of which 11,558 have this service. The further statement is made that only 5.71 per cent. of our people are thus served. Like many statistics, these figures are to some extent misleading, for the casual reader, unfamiliar with conditions in this state, would not know that the State Department of Health, through its seven district health officers, pays attention to rural health problems. It may be that better results would be secured if all counties would provide a full-time health officer acting in association with our district health officers, but the present system is certainly efficient to a large degree.

CHIROPRACTORS ADVERTISING IN CHURCHES.

Two Methodist churches, one in Elkhart and one in Fort Wayne, Indiana, have given the chiropractors the use of their edifices for propaganda purposes. This is a clever move. Any quack could appeal to an audience of medically uneducated persons and make fools of a certain proportion. Claims of successful treatment

of diseases have enriched pretenders from the earliest times. The ability to analyze and apply sound reasoning to problems of daily life is denied to many. The associations of church life carry a certain endorsement of views presented to some minds. This is an illustration of the use of good material for unholy purposes. In the East we expect the chiropractors to use all possible means for the purpose of securing endorsement, but we cannot conceive of the possibility of lending churches to advancing the interests of the cults in this state. When the campaign for legalizing the chiropractors is inaugurated in this state we trust that average intelligence will not permit desecration of holy places.

NEWS ITEMS.

THE EXECUTORS OF THE ESTATE OF DR. EDWARD H. NICHOLS have arranged with Dr. Thomas K. Richards, who has been for the last three years Dr. Nichols' associate and assistant, to continue the practice of Dr. Nichols at 294 Marlboro Street.

INFANTILE PARALYSIS.—Thirty-five cases have been reported in Rhode Island, with six deaths. The State Board of Health is actively at work to prevent further spread of the disease.

WEEK'S DEATH RATE IN BOSTON.—During the week ending July 29, 1922, the number of deaths reported was 152, against 203 last year, with a rate of 10.38. There were 23 deaths under one year of age, against 29 last year.

The number of cases of principal reportable diseases were: Diphtheria, 32; scarlet fever, 17; measles, 38; whooping cough, 31; typhoid fever, 4; tuberculosis, 44. Included in the above were the following cases of non-residents: Diphtheria, 2; scarlet fever, 2; tuberculosis, 8.

Total deaths from these diseases were: Scarlet fever, 2; typhoid fever, 1; tuberculosis, 12. Included in the above were the following cases of non-residents: Scarlet fever, 1; typhoid fever, 1.

THE WINTHROP HOSPITAL.—The successful completion of the drive for a total of \$35,000 for the Winthrop Community Hospital was celebrated by a dinner and reception at the Cliff House, Winthrop Highlands, July 31 last. This money will be used in purchasing the Dr. Metcalf hospital and providing for its equipment.

DEATH IN SERVICE.—Laboratory Assistant William E. Gettinger, United States Public Health Service, died at Hamilton, Mont., June 30, 1922, of Rocky Mountain spotted fever, contracted while in line of duty and engaged in laboratory work in connection with the investi-

gation of that disease, known to be one of the most fatal of diseases when contracted in the laboratory.

FORTY-FIFTH ANNUAL REPORT OF THE ADAMS NERVINE ASYLUM.—The managers of this institution report a successful year. The Asylum, which was founded for the benefit of indigent, debilitated, nervous people who are not insane, has rendered service this year to 195 patients, of whom 51 were treated free. The daily average number of patients was 32. It is encouraging to note that the cost of running the Asylum was about \$6,000 less than previous years.

CHANGE OF OFFICE.—Dr. Joe Vincent Meigs has removed his office to 286 Marlborough Street, Boston.

SUSPENSION OF DR. JOSEPH LEVEK.—The Board of Registration in Medicine conducted hearings August 2, 1922, for the consideration of complaints against four physicians in which gross unprofessional conduct was alleged. Three of the cases were brought to the attention of the Board by Federal prohibition agents and related to alleged irregularities in connection with prescriptions for alcoholic liquors. The Board dismissed one case and postponed action in two others of this class.

The most important hearing was held because of complaints filed by physicians of Lawrence, who felt that the defendant, Dr. Joseph Levek, of 32 Lawrence Street, Lawrence, Mass., an associate on a hospital staff, had improperly treated a person. The Board suspended the registration of Dr. Levek for one year. Complaint has been entered in court at Lawrence and Dr. Levek is held in \$3,000 bonds for further court proceedings August 15, 1922. The probability of a trial makes further reference to this case at this time improper.

The Massachusetts Medical Society.

MEMBERSHIP CHANGES FOR THE MONTH OF JULY, 1922.

OFFICIAL LIST (6TH).

Compiled by the Secretary.

ALPHABETICAL LIST.

Atchison, Charles M., New Bedford, now 459 Mill St.
 Baker, Leonard Allen, Middleboro, office now Sullivan Building.
 Begg, Alexander S., from Jamaica Plain to West Roxbury, office Boston, 80 East Concord St.
 Bessey, Earle E., Waban (Newton), now 1690 Beacon St.
 Blackway, Charles E., Fall River, now 132 Franklin St.
 1905-1922—Brennan, Thomas Joseph, Little Compton, R. I., office Fall River, 151 Rock St.

- Brigham, F. Gorham, from Suffolk to Norfolk, Brookline, office Boston, 35 Bay State Road.
- Brittingham, Harold N., from Roxbury to Cleveland, Ohio, 2753 Euclid Heights Boulevard.
- Burnett, Joseph H., now Boston, 483 Beacon St.
- Brown, Lloyd T., from Suffolk to Norfolk, Milton, office, Boston, 372 Marlborough St.
- Carr, Earl B., from Melrose to Montrose, Minn.
- Chronquest, Alfred P., from West Roxbury to New York, the Bronx, U. S. Vets. Hosp. No. 81.
- Cobb, Farrar, from Suffolk to Norfolk, Brookline, office Boston, 419 Boylston St.
- Cody, Peter White, died at Lawrence, July 15, 1922, aged 64.
- Cunningham, Allan R., Boston, now 483 Beacon St.
- Cunningham, John Henry, from Suffolk to Norfolk, Brookline, office Boston, 46 Gloucester St.
- Curtis, Harlan F., from McCook, Nebraska, to Charles City, Iowa.
- Cusick, Laurence Francis, Nahant, office now Boston, 320 Marlborough St.
- Cushing, Arthur A., Brookline, now 100 Sewall Ave.
- Cutter, Irving Taylor, from Winchester to San Antonio, Texas, Moore Building.
- Darling, Charles B., from Norfolk to Middlesex South, Roxbury to Waban, office Boston 483 Beacon St.
- Day, Hilbert P., from Suffolk to Middlesex South, Cambridge, office Boston, 45 Bay State Road.
- De Wolf, Charles W., Wakefield, office Boston, now 358 Commonwealth Ave.
- Dix, George A., Worcester, now 6 Ashland St.
- Emery, Edward S., Jr., Brookline, office Roxbury, Peter Bent Brigham Hospital.
- Favaloro, John, from Middlesex North (Lowell) to Essex South, Lynn, 275 Summer St.
- Ferrin, William W., Haverhill, now 77 Emerson St.
- Fiske, Eustice Lyman, from Fitchburg (Worcester North) to Croton-on-Hudson, N. Y.
- Fitz, Reginald, from Mayo Clinic, Rochester, Minn., to Roxbury, Peter Bent Brigham Hospital.
- Foley, John Arthur, from Suffolk to Norfolk, Dorchester, office Boston, 514 Commonwealth Ave.
- Forsley, Thomas, Jr., Lowell, now 308 Merrimack St.
- Gilpatrick, Roy Hawkes, from Suffolk to Middlesex South, Brighton, office Boston, 19 Bay State Road.
- Goethals, Thomas K., from Suffolk to Norfolk, Brookline, office Boston, 443 Beacon St.
- Harris, Paul L., from Lowell to Ellis Island, N. Y., Marine Hosp. No. 43.
- Haywood, Ralph W., Salem, now 24 1-2 Winter St.
- Hooper, George Henry, Boston, now 722 Commonwealth Ave.
- Horr, Albert W., from Suffolk to Middlesex South, Malden, office Boston, 419 Boylston St.
- Hubbard, Eliot, Jr., from Suffolk to Norfolk, Roxbury, office Boston, 74 Bay State Road.
- Iovanna, Nicholas, from Boston to Revere, office Boston, 256 Hanover St.
- Keenan, George F., Boston, now 207 Bay State Road.
- Kelley, Henry Joseph, Beverly, now 25 Broadway.
- Kershaw, George H., Fall River, now 163 Stafford Road.
- Kleinert, Margaret Noyes, from Suffolk to Norfolk, Jamaica Plain, office Boston, 82 Commonwealth Ave.
- Lewis, Frank Edward, Nantucket, now 2 Chestnut St.
- Libby, Edward N., from Roxbury to Jamaica Plain, office Boston, 638 Beacon St.
- Linnenthal, Harry, from Roxbury to Brookline, office Boston, 45 Bay State Road.
- Livinston, William K., from Boston to Eugene, Oregon, Univ. of Ore. Health Service.
- Lurie, Moses Hyman, from Suffolk to Norfolk, Roxbury, office Boston, 483 Beacon St.
- Lyman, Henry, Brookline, office Roxbury, Huntington Memorial Hospital.
- Lyons, Joseph Benedict, died at Charlestown, July 18, 1922, aged 51.
- McCarthy, Eugene A., Fall River, now 422 North Main St.
- Macdonald, William Joseph, Boston, now 9 Massachusetts Ave.
- McKittrick, Leland S., from Suffolk to Norfolk, Brookline, office Boston, 520 Commonwealth Ave.
- McLellan, William Edwin, from Lynn to Buffalo, N. Y., U. S. P. H. S. Marine Hosp.
- Mandell, Augustus H., New Bedford, office now 101 School St.
- Mason, William, Fall River, now 151 Rock St.
- Mathewson, Frank W., New Bedford, office now 98 Spring St.
- Maynard, Herbert E., from Suffolk to Middlesex East, Winchester, office Boston, 178 Commonwealth Ave.
- Mitchell, William, from Needham Highlands to Needham Heights, 511 Highland Ave.
- Milward, Francis W., Cleveland, Ohio, now 11636 Detroit Ave.
- Morrison, William Reid, from Suffolk to Middlesex South, Brighton, office Boston, 527 Beacon St.
- Mysel, Philip, from Suffolk to Norfolk, Roxbury, office Boston, 259 Hanover St.
- Nowell, Howard W., from Suffolk to Norfolk, Brookline, office Boston, 416 Marlborough St.
- Nute, Albert James, from Suffolk to Norfolk, Jamaica Plain, office East Boston, U. S. Immigration Station, Station.
- O'Brien, John Francis, Taunton, now 632 Somerset Ave.
- Odeneal, Thomas F., Beverly, now 37 Abbott St.
- Ormsby, Edward B., from Suffolk to Norfolk, Milton, office Boston, 350 Commonwealth Ave.
- Palmer, George Monroe, died at Lynn, July 21, 1922, aged 59.
- Papen, George William, from Suffolk to Middlesex South, Allston, office Boston, 520 Commonwealth Ave.
- Parker, Frederick D., Brookline, now 37 Claflin Road.
- Parker, William S., from Suffolk to Middlesex South, Watertown, office Boston, 483 Beacon St.
- Phaneuf, Louis E., from Suffolk to Norfolk, Brookline, office Boston 514 Commonwealth Ave.
- Pierce, Appleton Howe, from (Worcester North) Leominster to (Norfolk) West Roxbury, U. S. Vets. Hosp. No. 44.
- Provost, Raoul G., New Bedford, now 119 Hillman St.
- Raeder, Oscar J., from Neuilly-sur-Seine, France, to Roxbury, 74 Fenwood Road.
- Rice, Robert, died at Haverhill July 9, 1922, aged 52.
- Richards, Thomas K., from Suffolk to Middlesex South, Cambridge, office Boston, 294 Marlborough St.
- Richardson, Oscar, from Suffolk to Norfolk, Roxbury, office Boston, Mass. General Hospital.
- Risley, John N., New Bedford, now 271 Union St.
- Robbins, Elmer E., Jr., New Bedford, now 449 Pleasant St.
- Root, Howard Frank, from Roxbury to Brookline, 10 Wellman St.
- Sawyer, Howard P., Fall River, office now 122 Purchase St.
- Seaver, Edwin P., Jr., New Bedford, now 7 North Sixth St.
- Sedgley, Frank Robert, from Staten Island, N. Y., to St. Paul, Minn., U. S. Vets. Hosp. No. 65.
- Segall, Samuel K., New Bedford, now 179 William St.
- Senecal, Raymond E., New Bedford, now 310 Sawyer St.
- Shedden, William M., West Newton, office Boston, 87 Marlborough St.

Simpson, Charles Moffett, Boston, now 98 Queensberry St.
 Solomon, Harry C., Jamaica Plain, office now 270 Commonwealth Ave.
 Sylvester, Charles Porter, Boston, now 899 Beacon St.
 Smith, Laurence Weld, from Brookline to Manila, P. I., University of the Philippines.
 Stein, Louis C., Boston, now 353 Commonwealth Ave.
 Stone, Moses J., Dorchester, office now State Infirmary, Tewksbury.
 Ullian, Louis Joseph, from Suffolk to Norfolk, Roxbury, office Boston, 68 Bay State Road.
 Verschow, Nathan, Hartford, Conn., now 28 Sisson Ave.
 Webber, Isaac Mervyn, from Worcester to South China, Maine, P. O. Weeks Mills, Me.
 Wright, James Homer, from Suffolk to Middlesex South, Newton Center, office Boston, Mass., Gen'l Hospital.

ADDRESSES UNKNOWN.

Azadian, David George.
 Kelley, Robert Edward Stack.
 Lawlor, John Charles.
 McLintock, Elsie.
 McConnell, David James.
 O'Donnell, George Thomas.
 Seibels, Robert Emmett.
 Whitcomb, Clarence Adelbert.

Changes of address should be sent to the Secretary, Dr. Walter L. Burrage, 42 Eliot Street, Jamaica Plain 30.

Correspondence.

WALTER REED GENERAL HOSPITAL OFFERS A COURSE IN PHYSIOTHERAPY

Mr. Editor:

A course in physiotherapy, covering a period of one year will be offered at Walter Reed General Hospital, Washington, D. C., beginning Oct. 2, 1922. Credit will be given for previous training in Physical Education, Nursing, Physiology and Anatomy, so that the course may be completed in six months or even less. The schedule of subjects included all branches of physiotherapy, and, in addition, lectures in general hospital subjects.

Accepted candidates will be listed as student aides, and will be furnished quarters, rations, laundering of uniforms, and, in addition, \$15 per month. No tuition fees are required.

Graduates will be eligible for positions in the Physiotherapy Department in army hospitals, and are expected to serve one year. Graduate aides in army hospitals are provided quarters, rations, laundering of uniforms, and are paid a base salary of \$60 per month, plus a Congressional Bonus of \$20 per month.

Application blanks will be mailed on request.

K. F. KESMODEL.

Major, Med. Corps, U. S. Army.
 Acting Director of Physiotherapy.

RECENT DEATHS

DR. GEORGE HENRY TALBOT, a member of The Massachusetts Homeopathic Medical Society, died at his home in Newtonville July 28, 1922, at the age of sixty-three. He was born in Norwood, graduated at Boston University School of Medicine in 1882 and settled in practice in Bellows Falls, Vt. There he met his wife, Jessie E. Talbot. Moving to Newtonville in 1888, he became a member of the staff of the Newton hospital. During the war he took the place of a younger practitioner who went to the front

during that time Dr. and Mrs. Talbot assisted the Red Cross, turning over their house as a headquarters for the local chapter. In addition to his wife he is survived by two daughters.

DR. FREDERICK AUGUSTUS DAVIS, a member of the Massachusetts Homeopathic Medical Society and of the American Institute of Homeopathy, died at his home in Boston July 29, 1922, after an illness of four weeks. He was born in Ellsworth, Me., March 24, 1861, and graduated from the Hahnemann Medical College and Hospital, Philadelphia, in 1884, settling in practice in Belfast, Me. After moving to Boston in 1889 he was connected with the Homeopathic Dispensary and with the Boston University School of Medicine, where he was a lecturer on diseases of the stomach. At one time Dr. Davis was president of the Boston Surgical and Gynecological Society. He was a Mason, an Odd Fellow, and a Knights Templar. His wife, who was Susie Blaisdell Goodell of Boston, and one son survive him.

MEDICAL MEETINGS

The JOURNAL would like to publish a schedule of all medical meetings in this state and others of general interest.

A previous announcement of the plan has not led secretaries of societies to send in data to any great extent. It has happened quite often in the past that notices to members of societies have been lost or forgotten and subsequent reference to a meeting has made a member regret that lapse of memory led to non-attendance. It has also happened that two meetings have been scheduled for a given date and the inability to attend both has been disappointing. A publication of dates may lead to the selection of days which may be free.

PRENDERGAST PREVENTORIUM

The executive committee of the Boston Tuberculosis Association has issued invitations for visits to the Preventorium August 15 from 4 to 7 p. m. Tea will be served and visitors are asked to bring a lunch. The Preventorium is on Harvard and Ashland streets, Mattapan. Take Elevated to Forest Hills and change to Milton car.

BOOKS AND PAMPHLETS RECEIVED

MERCK'S SPECIALTIES. A list of therapeutic agents with notes as to special usage, dosage, etc. (Among the newer drugs listed in this pamphlet are "Eucupin," "Vuzin," and other compounds related to quinine which have been attracting some attention in Europe recently.) Copies may be obtained free of charge by addressing Merck & Co., 45 Park Place, New York City.

REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Week Ending July 22, 1922.

Disease.	No. of Cases.	Disease.	No. of Cases.
Anterior poliomyelitis	7	Pneumonia, lobar	17
Chicken-pox	24	Scarlet fever	52
Diphtheria	90	Syphilis	32
Dog-bite requiring anti-rabic treatment	10	Septic sore throat	1
Encephalitis lethargica	1	Suppurative conjunctivitis	5
German measles	6	Trachoma	2
Gonorrhea	113	Tuberculosis, pulmonary	138
Malaria	1	Tuberculosis, other forms	19
Measles	227	Typhoid fever	25
Mumps	37	Whooping cough	112
Ophthalmia neonatorum	18		
Pellagra	1		

The Boston Medical and Surgical Journal

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Original Articles.

THE DIAGNOSIS OF DISEASES OF THE URINARY TRACT.*

(WITH ESPECIAL REFERENCE TO THE COMPARATIVE VALUE OF THE VARIOUS DIAGNOSTIC DATA).

By WM. C. QUINBY, M.D., BOSTON.

[From the Urological Clinic of the Peter Bent Brigham Hospital.]

IN no branch of major surgery are the methods of arriving at an accurate pre-operative diagnosis so numerous and so reliable in their detailed findings as are those which are applied to diseases of the urinary tract.

During the past fifteen to twenty years much progress has been made, so that the older teachings in many respects have had to be modified. For instance, it is well recognized today that the classical description of renal colic, the so-called Dietl's crisis, of pain sharp and cutting, referred downward from the kidney region along the course of the ureter to either the testicle or vulva, may hold true of one patient, while in another, bearing identical lesions, this type of pain may be absent or greatly modified. Or, again, in regard to the conclusions to be drawn from the examination of the urinary sediment, much stress used to be placed on the finding of

pus in clumps, or of caudate cells, or of the so-called compound-granule cells, as characteristic of different portions of the urinary passages. Now we know that such details as these are quite valueless, it having become possible to localize diseases by other and much more accurate methods. Though the observation of patients regarding their own symptoms is well known to be often inaccurate, nevertheless, a careful history and general physical examination are still of as much importance as ever.

Concerning the analysis of the urine, the absence of albumen or its presence in varying amounts is of less significance by far than is the amount of urine excreted during twenty-four hours and the combined function of the kidneys as measured by the phenolsulphonephthalein test. Formed elements in the sediment, such as pus, blood or casts, are of much more significance than are various types of fixed tissue cells or the occasional finding of crystals. Frequently the data from bacteriological investigation of the urine are of importance, especially as regards the presence or absence of tuberculosis.

Excluding, then, those findings in the urine which accompany the various nephropathies commonly classed as Bright's disease, the most important elements from the point of view of the urologist are pus and blood occurring either singly or combined. Either of these is an important finding, and its source must be carefully sought and identified by the usual diagnostic

*Presented before the Boston Surgical Society, April 3, 1922.

procedures. Indeed, too much stress cannot be laid on the fact that it is the duty of all physicians today to see to it that in every case of hematuria or pyuria, the source of such is accurately determined, at the earliest possible date following its appearance. Of no less importance is it, however, to recognize the fact that there exists a variety of ailments of the urinary tract in which the urine may be found to be absolutely normal. Therefore, if the urine contains positive evidence of disease this is important, but negative evidence by no means excludes.

Following the history, the physical examination, including blood pressure and renal function test, and the urinalysis, we come to the data obtained by the radiograph, and this leads to a discussion of the relative values and proper interpretation of such shadows as may be found in the x-ray plate. Since this is in its ultimate analysis only a graphic record of varying degrees of density, it frequently happens that shadows so found need confirmation before an absolute opinion regarding their significance can be expressed. If the suspicious shadow involves the bladder it can be confirmed by ocular examination of this organ through the cystoscope, while if it concerns the ureter or kidney the passage of leaded catheters into the ureters or the injection of a solution opaque to the x-ray into the kidney pelvis will be necessary. In other words, the finding in an x-ray plate of a shadow which is consistent with that of a ureteral stone, let us say, is not today sufficient evidence on which to advise and perform an operation for the removal of such stone until absolute confirmation of the shadow by accessory methods has been accomplished.

As regards the data to be derived from a simple x-ray examination of the urinary tract, then, we may say that they are of great importance in our diagnosis, but only when confirmed. When such data are derived from an examination which has been made after the renal pelvis and ureter have been outlined by opaque substances,—in other words, when accessory diagnostic methods have been added to the x-ray,—then the value of such data is paramount and incontrovertible.

On all data obtained by the use of the endoscope and cystoscope we may place definite reliance, limited only by the degree of experience of the observer. Instances of infection in urethra or bladder, as well as stone, diverticulum, or foreign body in the bladder, are easily recognized. In the differentiation between benign and malignant growths in the bladder cystoscopic data may be at times inconclusive, but if we remember that all the common bladder neoplasms are at least potentially malignant, and if we act accordingly, no great error will arise from this cause.

This is not always the case with those findings which result from attempts to investigate the

product of each kidney separately by the use of the ureteral catheter, though as a rule complete reliance can be placed on them. The commonest difficulty arises from the occasional inhibition of renal function caused by the passage of the catheter. This is not nearly so apt to occur if the kidneys are in a state of active diuresis at the time of the observation. To obviate this type of temporary anuria, therefore, the patient should have taken several glasses of water within the hour immediately preceding the cystoscopic investigation. A second minor difficulty occurs occasionally in those instances in which the microscopic examination of the urine collected through the ureteral catheter shows a few blood cells. These may be due to renal disease or they may have been caused by the trauma incident to the passage of the catheter. It is impossible to tell which is the case, so that their presence must be ignored; or if the matter seems important, a second observation should be made as a check on the first. With the exception of such minor considerations as these, the data obtained by the use of the ureteral catheter are reliable and of great value.

Lastly, those data which are obtainable by the injection of solutions opaque to the x-ray, in order to outline the urinary passages, just as the intestinal tract is outlined by the ingestion of barium or bismuth, are of the utmost importance and may frequently even be the only ones on which an accurate and proper diagnosis can be based. The pyelogram or ureteropyelogram is subject to no errors that I am familiar with except always, of course, those of misinterpretation, and this is very rare.

In our present stage of diagnostic knowledge as it concerns the urinary tract it is fair, I think, to suggest the following as working rules or postulates.

1. Do not rush to the use of such modern diagnostic aids as the cystoscope before having taken a detailed history of the patient and having made a thorough general physical examination.
2. Examine the urine, especially for microscopic amounts of pus or blood, but do not feel that if the urine is normal this fact excludes the possibility of disease in the urinary tract.
3. Look with the eye of a skeptic on all shadows in the plain x-ray plate which seem to mean lithiasis within the urinary passages until such shadows have been proven by further measures to be in fact within these passages.
4. The accurate and early determination of the exact source of pus or blood in the urine is imperative. This can only be satisfactorily accomplished by the use of the cystoscope and ureteral catheter.
5. The data to be learned by the pyelogram are frequently of the greatest importance. This procedure should therefore be carried out frequently, often as an aid in the elucidation of

the source of abdominal pain whatever its location.

To make some of the above points clear a consideration of the following cases will be of interest, especially as regards the importance of data obtained by means of the x-ray:

Bladder. A. X-RAY SHOWS SHADOWS.

(Raising question as to whether these are in the bladder or urinary passages.)

nancy. Cystoscopic examination of the bladder immediately showed that this organ was entirely free from stones and that the only pathological condition present of any consequence was cancer of the prostate. Thus the shadows in the x-ray plate were shown to be either phleboliths or calcified lymph nodes.

B. X-RAY SHOWS NO SHADOWS.

CASE 2. A man forty-nine years of age com-



FIG. 1.—Case 1.

CASE 1. A man seventy years old complained of the general symptoms of an obstruction at the neck of the bladder caused by the prostate. X-ray examination of the bladder had been made, in which numerous small shadows were found. Rectal examination had shown a condition of the prostate suggesting malignancy, and the patient had been given the diagnosis of cancer of the prostate, together with stones in the bladder, in spite of the fact that the urine was normal. Considered critically, of course, this might be true; or it was conceivable that the whole condition was due to prostatic calculi with accompanying induration of the prostate, a condition sometimes closely simulating malignancy.

Plain x-ray plate of the bladder showed nothing abnormal, but on filling the bladder with a shadow-casting solution the presence of a diverticulum immediately became evident.

CASE 3. A man forty-five years old complaining of hematuria, together with undue frequency of urination, was examined by the x-ray and no abnormalities seen, but on filling the bladder, as in the previous case, we immediately found extensive defects in the bladder outline caused by the presence of multiple neoplastic growths.

Urter. A. X-RAY SHOWS SHADOWS.

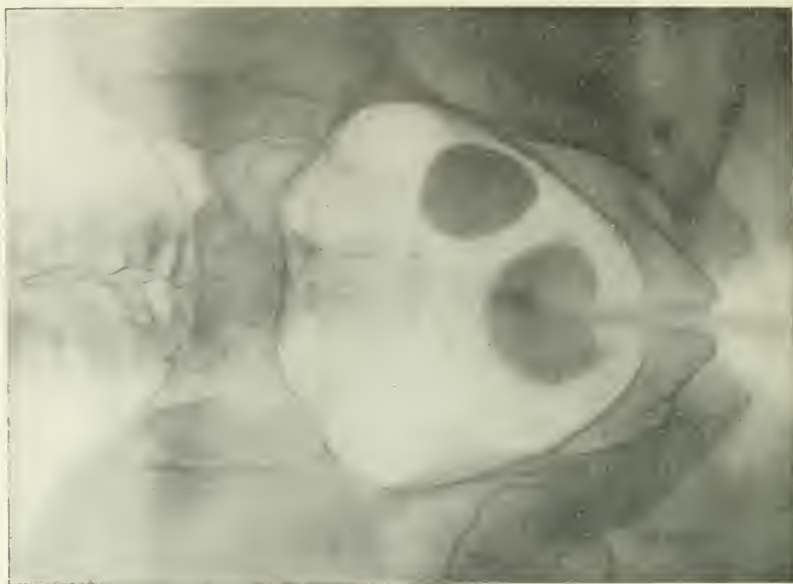


FIG. 3.—Case 2.

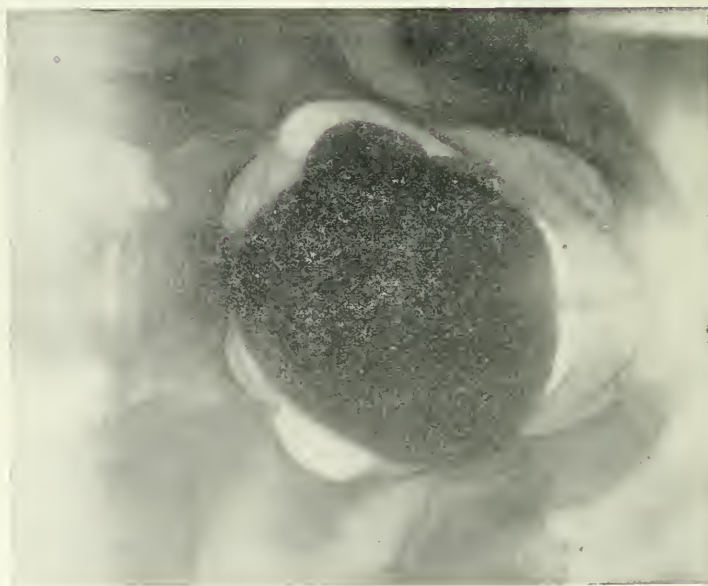


FIG. 2.—Case 2.



FIG. 5.—Case 4.



FIG. 4.—Case 3.



FIG. 5.—Case 5. Laryngoscopy. The clear area in the line of intubation beyond the catheter tip marks the presence of the stone. Note the dilatation of the ureter above the level of obstruction.

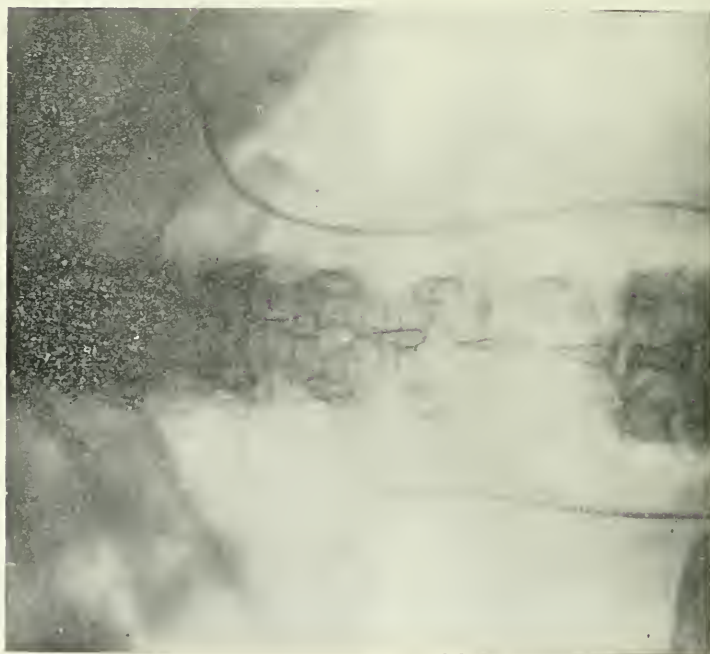


FIG. 6.—Case 4.



FIG. 5.—Case 4.

CASE 4. A widow, aged sixty-six, complained of pain in the right flank of one year's duration. Plain x-ray plate showed an elongated shadow lying low in the pelvis and very suggestive of calculus in the ureter. On passage of a wax-tipped catheter, in order to confirm this finding, the shadow was found to be transposed upward as far as the kidney region, thus proving without doubt and without the necessity of scratches on the wax-bearing catheter that this shadow was in fact cast by a ureteral calculus.

B. X-RAY SHOWS NO SHADOWS.

CASE 5. A man of forty-five complained of attacks of pain in the left flank suggestive of renal calculus. The plain x-ray plate showed no shadow, but the ureteral catheter did not pass up the left side, and injection of bromide solution showed a definite defect in the outline of the ureter, which was also confirmed by scratches on the wax-tipped catheter.

CASE 6. A single woman forty years old complained of a dull ache in the left side of the abdomen of two weeks' duration. On examination by a physician a mass the size of an egg was found which was freely movable and without tenderness. There were no other symptoms,

and investigation of the intestinal tract by x-ray failed to show any abnormality. The urine was normal, as was also the renal function. Examination of the region of the mass by the plain x-ray plate showed nothing abnormal, but following the injection of bromide solution there was seen a definite defect in the outline of the ureter over a considerable extent. This was subsequently shown by operation to be due to a tumor primary in the ureter.

Kidney. A. X-RAY SHOWS SHADOWS.

CASE 7. A single girl of twenty-seven complained of attacks of pain in the left flank at varying intervals over a period of ten years. The urine was normal on examination, as was also the renal function. X-ray of the region of the kidneys showed multiple shadows extending vertically along each side of the vertebral column. These were very numerous and undoubtedly represented the calcification following the healing of a previous *tubercle mesenterica*. It was not possible, however, from this plate to explain the cause of the patient's pain, but on filling the urinary tract with bromide solution it became evident that the left kidney was hydronephrotic, due to pressure caused by a group of these calcareous glands.

CASE 8. In another case, that of a man thirty-five years old who complained of a symptomless mass the size of an egg which he had found in his left hypochondrium, the plain x-ray plate showed shadows of a like nature. Certain of these shadows had been misinterpreted by the roentgenologist, so that the first report was "Hydronephrosis due to renal calculus." On injection of the kidney, however, the outline was found to be entirely normal, and at operation the mass was found to be a broken-down tuberculous lymph node on the anterior wall of the abdomen.

CASE 9. A man twenty-six years of age complained of a dull ache in the right side of the abdomen during the previous month. Together with this there was marked increase in the frequency of urination during the day, but no change in the periods at night. The physical examination was negative except for a few white blood cells in the urine. The total renal function, as well as the divided function, was normal, and it was not possible to find the tubercle bacillus in the urine. The plain x-ray plates showed various shadows which were quite ambiguous in size and arrangement, and which on first inspection seemed most probably to be situated within the intestinal tract. Investigation of the kidney after it had been filled with a solution opaque to the x-rays, however, showed a deformity of the lower calix of the kidney, and subsequent operation demonstrated an occluded tuberculosis of the lower pole of the kidney with lime deposits to which the shadows in the x-ray plate had been due.

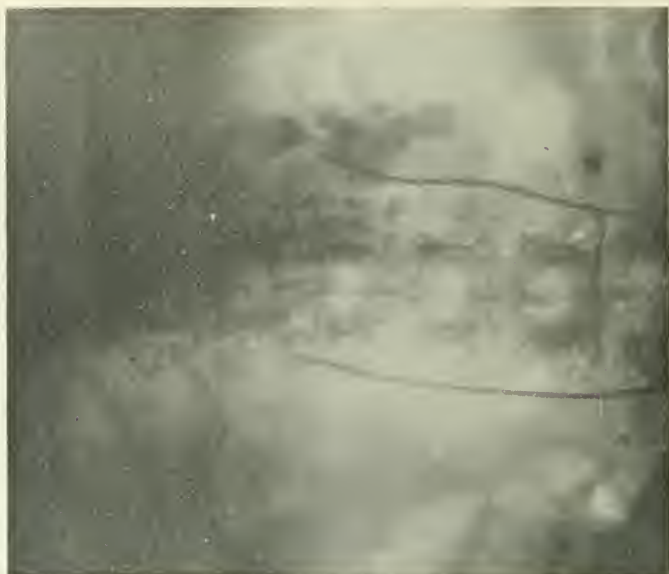


FIG. 10.—Case 7.



FIG. 9.—Case 7.



FIG. 12.—Case 8.



FIG. 11.—Case 7.



FIG. 14.—Case 9.

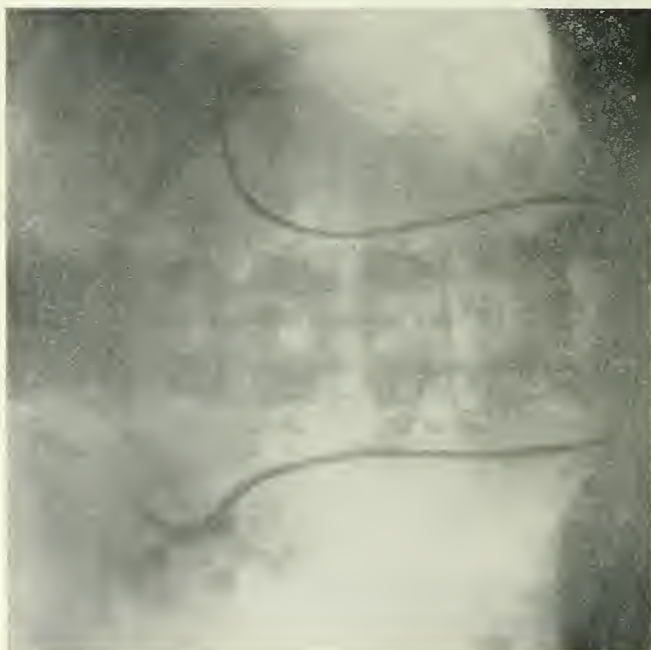


FIG. 13.—Case 8.

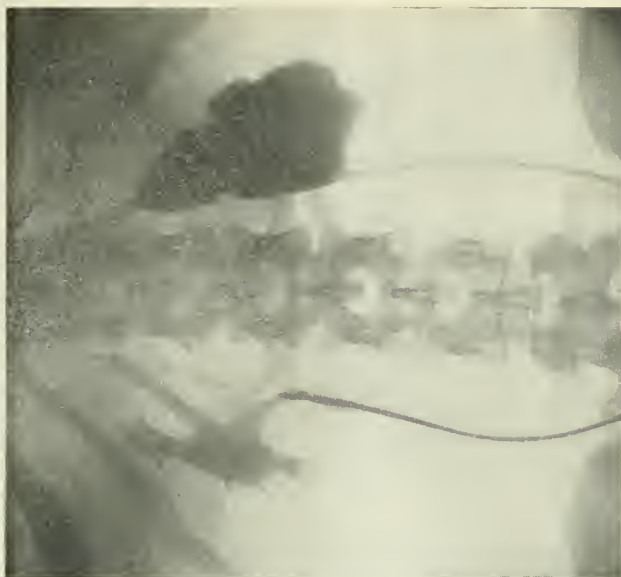


FIG. 16.—Case 10.



FIG. 15.—Case 9.



FIG. 17.—Case 11.

B. X-RAY SHOWS NO SHADOWS.

CASE 10. A girl of twenty-two complained of a dull ache in the right side lasting over a period of two or three years. She had been very carefully observed and never had any abnormality been found on physical examination except that at rare intervals the urine contained a very slight trace of albumen. Plain x-ray plate of the region in which the pain was experienced showed no abnormality. Injection of the kidney on this side, however, showed a large hydronephrosis, and subsequent operation demonstrated that this was caused by an abnormality of the blood supply to the kidney on this side, which caused obstruction to the outflow of urine by an artery which crossed the uretero-pelvic junction.

CASE 11. A married woman twenty-six years old complained of pain in the right side over a period of a year. At entrance to the hospital

she was having an attack of this pain with vomiting, but no chills or fever. The urine was normal except for a very rare white blood cell, and the total renal function was normal also. X-ray examination of the kidney and gall-bladder failed to show any abnormalities, but on injection of the kidney the pelvis was found occupied by a clear space around which the bromide solution cast a more dense shadow. This clear space was subsequently shown to be in fact a good-sized stone lying in the renal pelvis and composed of pure cystin.

CASE 12. A woman twenty-six years old had had pain in the left lower quadrant of the abdomen and in the left leg, following a normal delivery eight months previous. These attacks of pain were severe and caused vomiting and confinement to bed. There was no fever or symptoms on the part of the bladder. Physical examination showed a small mass in the lower abdomen situated two or three fingers' breadth



FIG. 18.—Case 12.

below the umbilicus. On pelvic examination this mass could not be felt bi-manually. Renal function was normal and culture of the urine was sterile. Operation was undertaken with a diagnosis of ovarian tumor or cyst. Both ovaries, however, were found to be normal, but there was a small intramural fibroid in the fundus of the uterus about two or three cm. in diameter. This was removed and operation was followed by a normal convalescence. The patient, however, continued to have the same sort of attacks of pain, so that she entered the hospital again a year later. At this time investigation of the urinary tract showed a ptosis of the left kidney, and injection on this side showed hydronephrosis. This was confirmed by operation.

CASE 13. A man thirty-two years old complained of a dull ache low in the right back, which a few days before entrance became very acute and cramp-like. At this time the pain radiated across to the left side and caused nausea, but no vomiting. There was no difficulty on urination and no abnormality in the urine. He was supposed to be suffering from appendi-

ctitis, and after the acute attack subsided his gastro-intestinal tract was examined by the x-ray. The report of this was that there was no abnormality except that there was some cecal stasis and a somewhat tender area in relation to the appendix, together with a little pylorospasm. The examination was otherwise negative. His pain continued, however, and on entrance to the hospital the urine contained a few blood cells, an occasional white cell and a slight trace of albumen. The renal function was normal. Although the plain x-ray plate showed nothing abnormal, injection of the kidneys showed a definite hydronephrosis. At operation the kidneys were found fixed at their lower poles (horseshoe kidney), the attacks of pain being due to an abnormal position of the ureter on the right side. This was altered, and the patient has since been entirely free from difficulty.

CASE 14. A single woman twenty-four years old complained of pain in the left side of the abdomen and back following a fall from a ladder six years previously. There had been repeated intermittent attacks of sharp left lumbar pain during the two years preceding her entrance to the hospital, and both she and her physician stated that she had repeatedly passed stones from the bladder and that the passage of these stones relieved the attacks of pain. Further, it was stated that on several occasions she had had hematuria and that she had been sometimes incontinent of urine while walking. She entered the hospital suffering from acute abdominal pain which ceased suddenly the following morning. Examination of her urine was entirely negative. Cultures were sterile and the patient had no fever. The total renal function was normal. X-ray plates failed to show any abnormality in the regions of the kidneys, ureters or bladder. She was discharged with a diagnosis of renal calculus, which had been passed previous to entry into the hospital.

Two months later she returned, complaining of the same type of pain. At this time x-ray plates, after injection of the kidneys, showed no evidence of remaining calculi on the left side, and, furthermore, the left pelvis was apparently absolutely normal. Specimens of urine from each kidney were also normal and cultures were sterile. The house officer's note at this time was as follows: "The patient's pain constitutes a perfectly definite indication for some radical procedure. She pleads for relief and therefore exploratory operation on the left kidney will be undertaken." This was accordingly done and the conditions found were, as may be surmised, entirely negative. The kidney was de-capsulated, however, and fixed in its position. Following a normal convalescence the patient returned again to the hospital four months later, saying that since her operation she had had four attacks of pain exactly the same as of old. This time she stated that during the pain she passes



FIG. 20.—Case 11.



FIG. 19.—Case 13.

no urine for a whole day. No stone appeared at any of these last attacks, but the patient was having acute pain on entrance and thought that she was again about to pass a stone. Cystoscopy was again undertaken, and as the instrument was about to be introduced a small round stone was found lying just within the vulval orifice. Ocular examination of this showed it to be without question a simple pebble, such as are used in large numbers in flower pots containing bulbs; and I at last saw the light. Subsequent chemical analysis of the stone thus naively submitted by the patient showed it to contain 96 per cent. silicon. The moral, of course, of this story is that in the presence of negative evidence nothing is ever gained by an exploratory operation. In fact today it may confidently be asserted to be practically true that so far as the urinary tract is concerned the operation which is frankly exploratory should hardly ever be undertaken.

DIAGNOSIS OF EARLY BREAST TUMORS, BASED ON THEIR CLINICAL PICTURE OR THEIR GROSS AND MICROSCOPIC PICTURE AT THE EXPLORATORY INCISION.*

By JOSEPH COLT BLOODGOOD, BALTIMORE, MD.

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Publicity. The writings^o of Samuel Hopkins Adams in 1913 in the *Ladies' Home Journal*, *Colliers'*, and *McClure's* magazines were the beginnings of a national campaign of education on cancer. This has been continued by the American Society for the Control of Cancer, culminating in Cancer Week last October.

This publicity has influenced many women to seek advice very shortly after their attention has been directed to the breast by pain, or feeling a lump, or noticing a discharge from the nipple. I called attention to this in 1916.^o

More recently, in March, 1922,⁴ I recorded that among the last one hundred consecutive patients seeking my advice because of some trouble in one or both breasts, in about one-half, after examination, nothing was found which indicated operation. In the remainder there was at least one definite lump; at the operation in more than one-half the lump was not cancer, and among the cases of cancer in more than one-half the glands were not involved.

If we compare this experience of the first two years of this, the fourth decade, with the first decade up to 1900, one is astonished to find that in the group *benign conditions of the breast* for which no operation was done, the per cent. has increased from 2 to 50, while the per cent. of benign tumors operated on, as compared with the malignant, has increased from 10 to 50 per cent.

This change in the clinical picture and the pathology has increased the difficulties in diagnosis.

Benign Conditions of the Breast for which Operation is Not Indicated. I will briefly summarize what has been published in the *Journal of the American Medical Association*.³

These conditions are recognized from the clinical history, from inspection and by palpation.

Clinical History. If the patient is twenty-five years of age, or younger, the possibility of a malignant lesion can practically be excluded.

Pain. 64 cases. Pain in one or both breasts, of any character or duration, is not, of itself, an indication of a lesion for which operation is necessary; and if a lump is palpated, the presence or absence of pain is of no particular value in differential diagnosis.

A painful scar (22 cases), whether observed after the excision of a tumor of the breast, or of the breast itself, or whether it has occurred after the complete operation for cancer, is not, of itself, a sign of recurrence of the previous trouble.

*Read at the meeting of the Boston Medical Library in conjunction with the Suffolk District Medical Society, Feb. 23, 1922.

⁴Suggested by my colleague, Cullen of Baltimore.

Discharge from the Nipple. 36 cases. The history of a discharge from the nipple, no matter what its character, does not indicate cancer, nor necessarily a precancerous lesion, unless a definite lump is found at examination, or unless there is evidence of ulceration of the nipple, suggesting Paget's disease, and operation is not indicated.

Disappearing Tumor. 24 cases. If this history is obtained, and a definite tumor can be palpated, it suggests that the tumor is a cyst in chronic cystic mastitis.³

Inspection. Unilateral hypertrophy before, during, or shortly after puberty (12 cases) which, on palpation, reveals a normal breast, requires no surgical intervention. Symmetry is usually restored by the development of the other breast² (p. 559). The huge enlargement of both breasts (diffuse bilateral virginal hypertrophy, 5 cases) requires no treatment, except complete excision of both breasts when the size is a deformity and causes discomfort¹ (page 197, Fig. 442, and ² page 559).

If in the unilateral hypertrophy there is extreme pain and tenderness, there is apt to be a central adenoma which may not be recognized on palpation. The breast should be explored.

Unilateral hypertrophy of the breast in the adult is usually due to the presence of a benign adenoma, or sometimes of mastitis.

Retraction of the Nipple. Congenitally retracted nipples may be unilateral. This type of retraction can be differentiated from the retraction due to benign or malignant disease only by obtaining a definite history.

Recent unilateral retraction of the nipple, not associated with lactation, should be looked upon as a sign of cancer, and the complete operation performed. It is a rare finding without a palpable tumor, and now and then it may be associated with chronic cystic mastitis³ (Fig. 29).

Ulceration of the Nipple. 3 cases. Paget described a clinical entity. He observed women with definite malignant lumps in the breast, who gave a history of first a warty condition of the nipple, or an eczema which slowly developed into an ulceration and completely destroyed the nipple, and this change in the nipple had been observed one to three years before the lump in the breast was felt.

In the first twenty years of my experience, I observed Paget's disease only in this stage. I always subjected it to the complete operation; none were cured. In the past ten years, especially in the past five years, due to publicity, I have records of almost 15 cases of Paget's disease in its early stage when the lesion was confined to the nipple, and the breast contained no palpable mass. In all but one of these early cases the breast has been removed, or the complete operation performed. All of these patients are well. In the majority, the microscopic section shows a carcinoma of a definite type, be-

ginning in the epidermis of the nipple and growing down into the breast through the ducts. In a few cases the microscopic appearance was that of a benign inflammatory lesion, or a benign wart.¹⁰ In only one patient was the nipple excised. The sections showed early cancer infiltrating the ducts. There was local recurrence, followed by the complete operation and death from metastasis. In the past year I have seen one example of a benign warty condition and two of irritated nipples not associated with lactation in which there had been redness, desquamation, and some oozing of blood. In these three cases the lesions quickly healed after cleansing with soap and water and a protective dressing, and these patients have so far remained well.

From this thirty years' experience with over 20 cases, a definite rule can be deduced: Any irritated condition of the nipple which does not heal quickly after cleansing and protection should be looked upon as Paget's disease and treated by at least the complete excision of the breast.

Palpation. This part of the examination is essential and, more than ever before, is the trained sense of touch required to differentiate between a definite lump, for which immediate operation is indicated, and an indefinite one which is simply part of a lumpy breast. Then, when a definite lump is felt, the operator should be anxious to train his sense of touch to distinguish between the benign and the malignant tumor.

In some cases this has been impossible. But I have found in recent years that more and more am I able to recognize the malignant lump on palpation, and when I do explore a tumor, I find less frequently that I have made the mistake of considering it benign when it was really malignant. Every surgeon who keeps careful records can check the results of his diagnostic ability to distinguish the benign from the malignant tumors on palpation.

Findings on Palpation. I have classified definite tumors as follows:⁴

A. One definite tumor in one breast. *B.* One definite tumor in each breast. *C.* Multiple definite tumors in one breast. *D.* Multiple definite tumors in both breasts. The letter *c* after *A*, *B*, *C*, or *D*, indicates that the single or multiple tumors are indefinite.

Definite Tumors, Single or Multiple, in One or Both Breasts. If a single definite tumor can be palpated in one breast, operation is indicated immediately, if the patient is over twenty-five years of age, and, for additional safety, I have placed this age at twenty. If the patient is younger than twenty, the tumor small, not painful, not increasing in size, there is no danger in delay, and I have observed quite a few to disappear.

When there is a single definite tumor in one breast with no change in the nipple, no dimpling of the skin, no fixation of the skin, and no atrophy of the subcutaneous fat, the differential diagnosis rests upon palpation of the tumor only, and, as I have just indicated, it should be our ambition to improve this delicate sense of touch. Publicity will greatly increase the number of such cases.

Multiple Tumors. If there is a tumor in each breast, or multiple tumors in one or both breasts, this suggests benignancy, and if the patient is nursing her child, or there is a history of recent lactation, delay may be justifiable on the diagnosis of a galactoele. But, on the whole, it is safer to explore the most definite of the multiple tumors and be governed by the pathological findings. Personally, I have never observed carcinoma as a multiple tumor except when associated with definite clinical signs of malignancy such as changes in the skin or nipple. These multiple tumors are adenomas, lipomas or multiple blue-domed cysts³ (page 486, and Fig. 11).

When there is a history of a disappearing tumor or a history of an excision of a tumor proved to be benign, the subsequent development of multiple tumors in one or both breasts is an indication of benignancy, but unless one has had considerable experience, it is safer to explore.

Indefinite Tumors, Single or Multiple, in One or Both Breasts. I now have records of more than 50 patients whose breasts, on palpation, revealed no definite lump, and usually multiple indefinite lumps in both breasts. We may call the latter a "lumpy" breast.

These 50 patients have been followed, some for many years, and none have developed carcinoma. Undoubtedly some may, but the evidence seems to show that the women in this group run no more risk of cancer than any other woman of the same age.

In my study of chronic cystic mastitis³ (pages 489 and 497), I described 48 cases of non-encapsulated adenomatous areas (BB-13-4) in which, in the majority of cases, the tumors were indefinite and usually multiple in both breasts, and, in my opinion, operation was not indicated, and one or both breasts were unnecessarily removed. This pathological entity—an area of non-encapsulated adenoma—may produce a single definite tumor³ (Figs. 13 and 14).

When the tumor is indefinite, single or multiple, the gross appearance of these areas is beautifully pictured in Kelly-Noble,¹ Plate I, Fig. 1.

In the second group (BB-13-5)³ (p. 497), there is, in addition to the adenomatous areas, one or more minute cysts, or one or more dilated ducts. Such an area may produce a single, definite tumor³ (Fig. 15), but in the majority of these 39 cases the tumors were indefinite and

usually multiple, and in these cases one or both breasts were unnecessarily removed.

I feel confident that the literature on the so-called chronic cystic mastitis has exaggerated its relation to cancer, and many surgeons have been influenced by fear rather than by fact; and even when only an indefinite area could be palpated, or multiple indefinite areas in one or both breasts, they have concluded that it would be safer to remove the breast and so protect the patient from cancer.

As I read my own evidence of thirty years, based upon more than 3000 cases, I am compelled to the conclusion that pain, discharge from the nipple and the palpation of one or more indefinite areas in one or both breasts, is not an indication for an operation, and that such patients run no more risk of cancer than any other woman of the same age.

But to distinguish between an indefinite and a definite lump in the breast requires experience and a trained sense of touch.

Unfortunately, surgeons with experience and this trained sense of touch have been misled, because when they have explored such an indefinite tumor, or removed the breast, their pathologists have reported to them that the lesion was adenocarcinoma, or "suspicious of malignancy," and this has been an obstacle to the proper development of differential diagnosis by palpation. I have discussed this in detail (3).

Worm-like Tumors Beneath the Nipple. This easily to be distinguished tumor is a definite clinical entity and has its positive pathology. It is due to the dilatation of the ducts beneath the nipple, and may be associated with a slight discharge from the nipple of brownish, or milk-like material, never of blood. I have described this clinical picture and pathology³ (page 500) from a study of 22 cases, with gross and microscopic illustrations. At the present time I have four cases recognized on palpation for which operation was postponed, and the palpable tumors disappeared. As far as I can make out, there is no relation between this type of dilatation of the ducts beneath the nipple and cancer, and when the worm-like mass beneath the nipple is recognized with certainty, exploration is not indicated. Cancer, however, very frequently begins in the nipple zone. But the tumor, on palpation, is an area of induration which should be easily differentiated from the soft, compressible, worm-like tumor, and as a rule the cancer is quickly associated with retraction or fixation of the nipple.

Diffuse Mastitis. I have discussed the definite tumor which may be felt in any part of the breast and which varies in size, shape and consistency. There is not space here to describe the different types. If this tumor cannot be distinguished on palpation, it must be explored. Then I have just pictured the special worm-like

tumor beneath the nipple, and now I would like to describe a third definite clinical entity, which should be recognized on palpation. I have called it *diffuse mastitis*.

This diffuse mastitis may be due to a diffuse non-encapsulated cystic adenoma, a definite type of chronic cystic mastitis. For its clinical and pathological picture I refer to the *Archives of Surgery*² (page 528) (BB-13-8). This form of chronic cystic mastitis is known in the literature as Schimmelbusch's or Reclus' disease, and in 1916 I called it *scule parenchymatous hypertrophy*.³

Briefly, there is nothing on inspection. On palpation, a quadrant, hemisphere, the entire breast, or both breasts, shows a definite thickening of the breast tissue; the involved breast has a palpable edge, like the liver or spleen; you can pick it up like a thick saucer, and in it you can palpate minute shot-like areas. If one breast is involved, it has been our rule to remove the breast, or to do the complete operation for cancer. In a few cases both breasts were involved and the bilateral operation was performed. In my communication in the *Archives of Surgery* I reported 13 cases. In one there was an area of cancer³ (Fig. 28), the glands showed metastasis, and the patient died of cancer. In the remaining 12 cases, of which two were bilateral, there was no positive evidence of cancer, and all of these patients have remained well.

In the past year I have repeatedly examined the breasts of three patients in which both breasts were apparently the seat of this type of chronic cystic mastitis. As I had never observed cancer in the bilateral type, I deferred operation under careful observation. In two patients the palpable areas have practically disappeared; in one, a recent case, it is still present.

This diffuse mastitis may be due to dilatation of the ducts in a quadrant or hemisphere of the breast. I have described my one observation in the *Archives of Surgery*³ (Fig. 19, page 511) (Pathol. No. 21192, BB-13-6). In this instance it could not be recognized from the diffuse type of chronic cystic mastitis until the breast had been removed.

Lactation Mastitis. During lactation there may be a diffuse mastitis of a quadrant, hemisphere, or of the entire breast, which never develops the clinical picture of an abscess, nor any changes in the nipple or skin. There is simply an area of induration, which, on palpation, is not unlike the diffuse chronic cystic mastitis except there are no palpable shot-like nodules. Although cancer of the lactating breast is infrequent, it does occur, and often it cannot be distinguished from this form of diffuse mastitis in lactation. When such breasts are explored, the gross and frozen sections give pictures difficult to differentiate the mastitis from the carcinoma. In all of these cases on my records the complete

operation for cancer has been performed, and I am inclined to think this is the safer procedure.

In lactation, an area of indurated breast due to so-called "caking" or pyogenic mastitis should do one of two things quickly: disappear or assume the clinical picture of an abscess and be incised. In a few rare instances this does not take place, and we are confronted with a diffuse area of induration. Of course, the probabilities are that this is mastitis, but the possibility of malignancy must be considered. I am inclined to think that in the future we shall be able to train ourselves to recognize the lesion by exploratory incision and the careful study of the gross appearance and the frozen section.



Fig. 1.—Pathol. No. 19740. Tubercular Mastitis of left breast. Female, aged twenty-eight; pregnant five months; diffuse infiltration of inner hemisphere; no change in skin or nipple. Exploratory incision—diagnosis cancer. Complete operation. The photograph shows the bulging of the inner hemisphere. See Fig. 2.

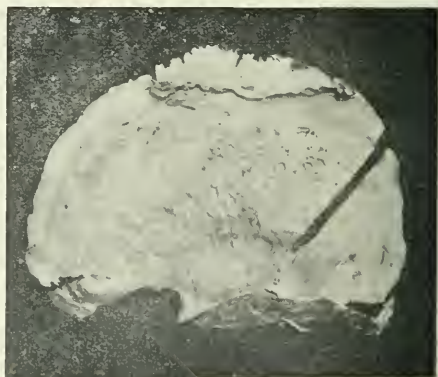


Fig. 2.—Pathol. No. 19740. Tubercular Mastitis of left breast. Cross section through involved hemisphere shows pregnancy lactation hypertrophy, diffuse infiltration, dilated ducts filled with milk-like material. Microscopic sections—tuberculosis, no cancer. This patient is well six years after operation. Identical mastitis in right breast recovered without operation.

I had the opportunity to do this in three instances recently—all fortunately proved to be benign and the breasts were saved.

Tubercular Mastitis. In the early years of our experience, tubercular mastitis came under observation, due to delay on the part of the patient, with one or more sinuses. Then they came earlier, with the picture of a definite abscess. In my experience, sinus and abscess exclude carcinoma. When I wrote my contribution to *Binnie's Surgery* in 1917, I had only observed tuberculous of the breast (Fig. 565) in the stage of sinus or abscess. But when I corrected the galley-proof I had just observed a case of tubercular mastitis without abscess, without sinus, which, on exploration, resembled carcinoma, and was treated for carcinoma (Figs. 1 and 2). Since then I have seen two additional cases. We, therefore, must be prepared to meet tubercular mastitis before the stage of sinus or abscess which on palpation will give an induration of the breast difficult to distinguish from carcinoma and which will require more than the usual experience to differentiate it from cancer even at the exploratory incision and from the frozen section.

Non-lactation Mastitis. Trauma, injection of salt solution, pyogenic infection of the breast secondary to a focus elsewhere, such as the skin, osteomyelitis, may appear with the clinical picture of diffuse mastitis, presenting the same difficulties as lactation mastitis and tubercular mastitis. I have just observed such a case. But the x-ray showed a definite focus in the rib beneath the mastitis, which indicated that, if it was carcinoma it was hopeless, and for this reason I explored, and found a post-typhoid osteomyelitis of the rib infiltrating the breast.

Comedo-Adenoma.¹ (Fig. 479, p. 225) and ² (Fig. 345, page 612). This type of adenoma, as previously described, may occur as a non-encapsulated small tumor, or as a diffuse infiltration

of the breast, palpating like mastitis. It can always be recognized at the exploratory incision by the worm-like masses (Fig. 3) which express on pressure, but as it is frequently associated with cancer, it should receive the operation for cancer. I have records of 49 cases; 21 are of the pure, benign type, and all of them remained well; 28 were associated with definite cancer, and show the usual operative results of cancer.

Carcinoma Mastitis. Carcinoma may infiltrate the breast so rapidly that it gives the picture of a diffuse mastitis (Fig. 4) and in the

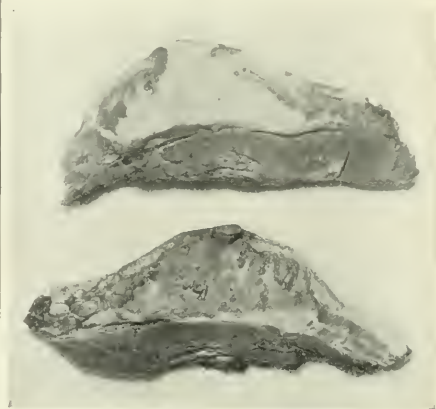


Fig. 4.—Pathol. No. 29603. Diffuse carcinoma of the entire breast. Upper view of fresh cut; lower view of older cut, showing a few comedones. Highest axillary glands involved. The patient died of metastasis.

early stage there may be no change in the skin or nipple. The late stage has been pictured in Fig. 515, page 245, Kelly-Noble.¹

Therefore, when we have the clinical picture of diffuse mastitis in one breast, we must always bear in mind that it may be diffuse carcinoma or comedo-adenoma and cancer, and for this reason, unless the surgeon is well able to recognize the benign form, it will be safer to perform the complete operation for cancer.

Single Definite Tumor Without Change in Skin or Nipple. Before proceeding with the description of the clinical picture and the pathology at the exploratory incision, I wish to call attention to the routine examination which should be made in every case of breast lesion on more than one occasion, and, if operation is to be performed, again on the operating table.

Routine Examination. The examiner should not know the history, or which breast is involved. The patient should recline on a couch, stripped of clothing to the waist, with the arms elevated above the head (Fig. 5).

One should inspect first the nipple, looking for warts, eczema, signs of discharge, retraction; the areola, the breast and the axilla. A visible

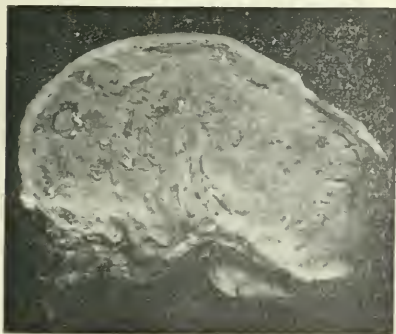


Fig. 5.—Pathol. No. 21085. Diffuse Comedo-adenoma and Cancer, involving entire breast. Cross section of breast shows the typical comedones. Microscopic sections show comedo-adenoma and cancer. See Fig. 18a.

fullness in the axilla extending beyond the outer and upper quadrant is due to breast tissue that not infrequently is present there. A visible small tumor is very suggestive of malignancy, except in the atrophic breast in patients with very little subcutaneous fat (Fig. 5).



FIG. 5.—The proper position for inspection and palpation of the breast. Inspection here shows benign warts of both nipples and a visible small tumor in the mid-zone of the right breast beneath the nipple.

Palpation. One should first palpate both breasts with both hands, feeling corresponding areas at the same time; then one breast with both hands, then with one hand. Every method of palpation should be employed. I find that palpating the breast with the fingers of one hand flat and moving the fingers up and down as when playing the piano is the best way to find the tumor.

When a definite tumor is found it should be studied as to its mobility, consistency and outline, its relation to skin, fat and nipple.

The breast occupied by the tumor should be pushed forward with the tumor to bring out dimpling. Fig. 6 (Path. No. 7973) [Previously reproduced in¹ Fig. 507] shows early dimpling, while Fig. 7 (Path. No. 8579)² (Fig. 309) shows bulging without dimpling; here the tumor proved to be a blue-domed cyst.

In spite of a very large experience, and especially recently, with tumors in which there was no clinical evidence of malignancy, that is, no changes in the skin, subcutaneous fat or nipple, I do not feel prepared to write as yet this very important chapter on the diagnosis of breast tumors from inspection and palpation. The facts are that one cannot be certain; and unless there are definite signs of cancer, one should explore.

Clinical History. The reason for making the examination first and getting the history later is that publicity is bringing women for such an examination with conditions of the breast with which the majority of surgeons have had little



FIG. 6.—Pathol. No. 7973.—Palpation of the lump bringing out dimpling of the skin over the lump—an almost certain sign of cancer when the lump is outside the nipple zone.

or no previous experience, especially single and multiple indefinite lumps. The examiner, therefore, should not be influenced by any suggestion as to whether or where the patient or a previous examiner felt a lump. I have considered this part of the problem in detail in a recent paper in the *Journal of the American Medical Association*.⁴

I have also given there the facts in the clinical history which are helpful. They may be briefly summarized in the beginning of this paper.

Diagnosis at the Exploratory Incision. The patient should be prepared for general anesthesia and shaved and cleaned as for the complete operation for cancer. The breast and tumor should be again carefully palpated with the gloved hand.

There is considerable difference of opinion as to whether the tumor should be cut down upon or excised with a zone of breast tissue. I prefer and practice the former, reserving the latter for small tumors in very fatty breasts.

The former allows the immediate exposure of the tumor through the smallest wound and, theoretically, gives less opportunity for dissemination of malignant cells, if the tumor should prove to be cancer, and allows a more immediate and thorough chemical and thermal cauterization the moment malignancy is demonstrated.

The vast majority of benign tumors are either distinctly ENCAPSULATED ADENOMA OR THE BLUE-DOMED CYST. If all other types of non-encapsulated tumors, or cysts not of the blue-dome type, were treated as malignant tumors, the per cent. of women mutilated would be relatively small.



FIG. 7.—Pathol. No. 8579. Palpation of the lump showing bulging instead of dimpling of the skin. This is suggestive, but not positive of benignancy. In this case the tumor proved to be a blue-domed cyst.

The operator should then first learn to recognize the blue-domed cyst. This is not difficult, and I have discussed it in detail in the *Archives of Surgery*.³ The distinctly encapsulated adenoma should not be difficult to recognize. I have described it in *Binnie's Surgery*.²

Figure 8 (Path. No. 21193) illustrates a distinctly encapsulated adenoma bulging like a dome from the surrounding normal breast. All adenomas have this distinct appearance, no matter what their size. Demonstrating this, the encapsulated tumor should be excised with a



FIG. 8.—Pathol. No. 21193. A distinctly encapsulated adenoma surrounded by a zone of normal breast tissue.

zone of breast, as shown in Fig. 8, and then the operator should bisect the tumor, as shown in Figs. 9 and 9a (21193 and 20269).

Frozen Section. The objection to the frozen section has been fully discussed in my recent



FIG. 9.—Pathol. No. 21193. Bisection of a distinctly encapsulated adenoma surrounded by a zone of normal breast tissue.

article in the *Archives of Surgery*.³ When pieces of the breast surrounding a blue-domed cyst and pieces of distinctly encapsulated adenoma are submitted to the pathologist responsible for the diagnostic work in the surgical clinics in this country, we find a marked difference of opinion, and when the diagnosis is "suspicious of malignancy," or "malignant," numerous breasts are unnecessarily sacrificed. Up to the present time I have numerous cases of both the blue-domed cyst and the encapsulated adenoma which have been diagnosed by a number of pathologists as malignant, but in which the operator has removed the cyst or the adenoma only, and there are no recurrences.

With these facts, which have been restudied again and again for a period of more than ten years, it is difficult to come to any other con-



FIG. 9a.—Pathol. No. 22269. Bi-section of a distinctly encapsulated adenoma, surrounded by a zone of breast, the seat of early lactation hypertrophy.

clusion but that the exposure of a blue-domed cyst or of a definitely encapsulated tumor must be looked upon as a sign that the tumor is benign.

Non-Encapsulated Solid Tumors. The moment that the surgeon in exploring a palpable lump in the breast fails to recognize a blue domie

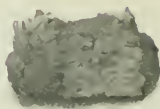


FIG. 10. Pathol. No. 28540. Cross section through a non-encapsulated benign comedo-adenoma. The markings are characteristic. If compressed comedones are exposed, as shown in Fig. 3.

or a definite capsule, he has evidence that should make him suspicious that he is dealing with a malignant tumor; and unless he has been trained thoroughly to recognize the small group of non-encapsulated benign tumors of the breast, he should chemically or thermally cauterize the wound and proceed with the complete operation for cancer.

In the *Archives of Surgery*,³ I have illustrated and discussed the non-encapsulated adenoma (BB-13-4, 5 and 7), and since the publication of this article in November, a number of other cases have come under observation, but I will not discuss them here, but picture the larger and more important group of non-encapsulated malignant tumors.

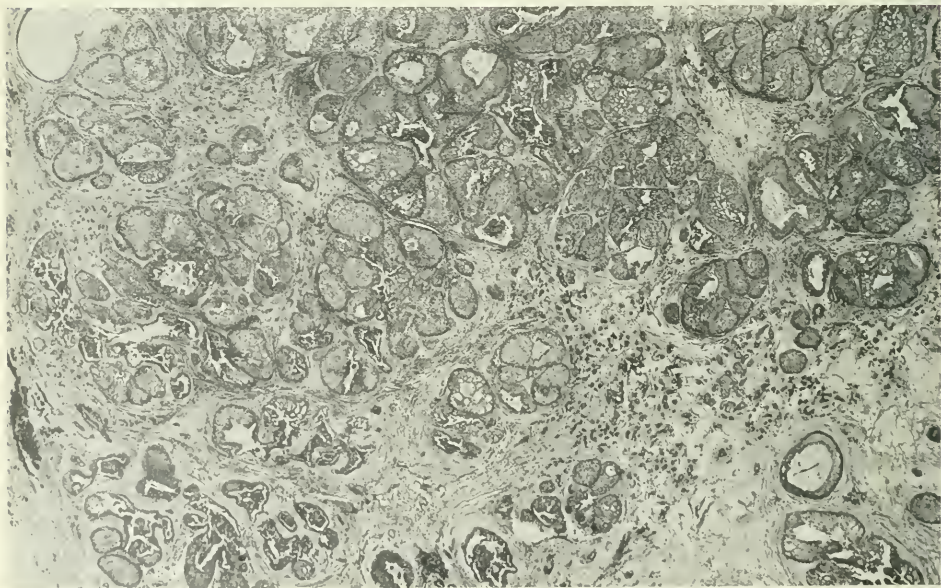


FIG. 11.—Pathol. No. 28540. Microscopic section (very low power) of pure benign comedo-adenoma. For comedo and cancer, see Fig 18a.

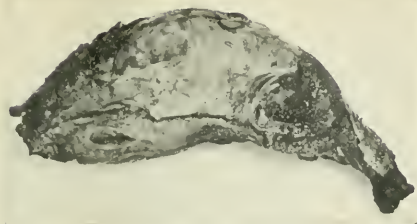


FIG. 12.—Pathol. No. 24144. Section through breast showing, to the right, circumscribed but non-encapsulated colloid cancer; to the left, breast tissue beneath the nipple. No evidence of chronic cystic mastitis.

Comedo-Adenoma and Cancer. I have records of 49 cases. The majority are small tumors, usually circumscribed. A few diffusely in-

volve the breast and appear clinically as mastitis (Fig. 3). This tumor should always be treated as cancer, because in 28 out of the 49 cases definite cancer was found microscopically. When the tumor is cut into (Fig. 10) (Path. No. 28540) it has a characteristic gross appearance—it is studded with granular areas from which worm-like masses can be expressed; it also has a typical appearance in the frozen section (Fig. 11) (Path. No. 28540).

This tumor should be as easy to recognize as the blue-domed cyst or the encapsulated adenoma.

Colloid Cancer. I have never seen this tumor encapsulated, but it is usually circumscribed. The moment one nick it, its mucoid consistency is at once recognized. On its cut surface one sees gelatinous vesicles; it may be colored by hemorrhage (Fig. 12) (Path. No. 24144).

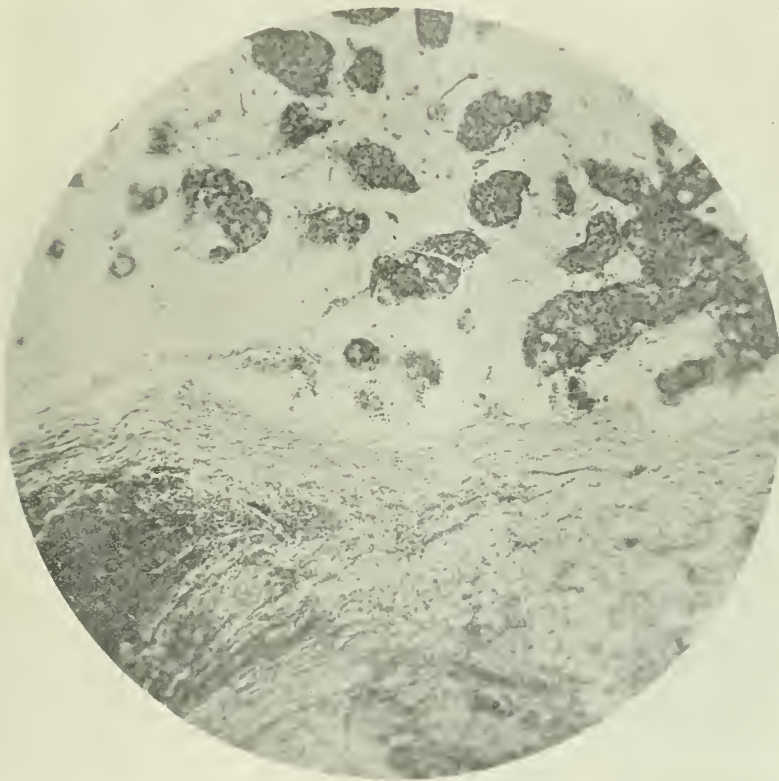


FIG. 13.—Pathol. No. 7101. Microscopic picture of colloid cancer. An area above, condensed breast stroma, with chronic inflammatory reaction in zone below.

The microscopic picture, to one familiar with the tumor, should differentiate it from all other breast lesions (Fig. 13) (Path. No. 7101).

The only tumor which might be confused with the colloid cancer is the pure myxoma. I have observed but two cases—both were distinctly encapsulated, and the operators removed the tumors only. In my opinion it would be wiser to treat the pure myxoma as a colloid cancer.

I have just restudied the intracanalicular myxoadenoma. With rare exceptions it is always an encapsulated tumor. At first sight in the very myxomatous type it might be confused with the myxoma or colloid cancer, but its consistency is always firmer; gelatinous vesicles never form on its surface; it is not friable and never exudes mucoid material. As a matter of fact, rarely do operators fail to recognize the benignancy of the encapsulated intracanalicular myxoadenoma. Its microscopic appear-



FIG. 14. Pathol. No. 29309. Small scirrhous cancer in a fatty, scirrhous breast. Note the cupping and the pulling of the fat towards the small cancer. This tumor was some distance from the nipple.

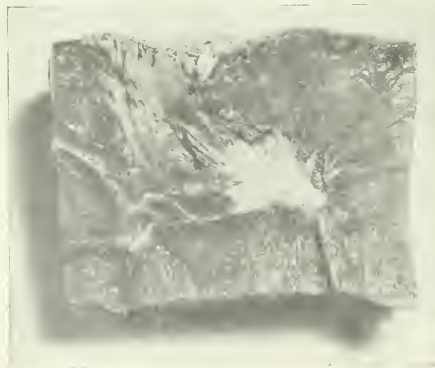


FIG. 15. Pathol. No. 37858. Small scirrhous cancer surrounded on three sides by fat; to the left, remains of breast tissue beneath nipple. Note the branching lines from the cancer. One of these has retracted the nipple, another dimpled the skin.



FIG. 16.—Pathol. No. 29246. Small scirrhous cancer with typical radiating lines into surrounding breast fat. Tumor is more cellular than those shown in Figs. 14 and 15.

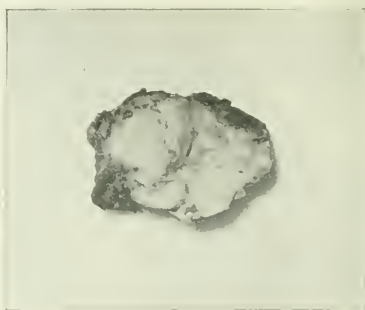


FIG. 17.—Pathol. No. 29360. Small circumscribed scirrhous to the left, without the radiating lines shown in previous illustrations; breast with a few dilated ducts to the right.

ance is also characteristic³ (Fig. 36).

Cancer. The small infiltrating scirrhous should never be mistaken. The surrounding breast tissue or fat is retracted towards it, giving it a star-like appearance (Figs. 14 and 15) (Path. Nos. 29309 and 27858).

Scirrhous cancer may be somewhat circumscribed, but even then we may see the fine lines of stroma extending from the tumor into the surrounding breast or fat (Fig. 16) (Path. No. 29246). Now and then the scirrhous is distinctly circumscribed and has not the star-like appearance as shown in Fig. 17 (Path. No. 29360). Scirrhous cancer usually cups on section; non-encapsulated benign tumors never do. It has a characteristic hardness; it gives a gritty sensation to the knife; granular material may be scraped from the surface. But in a few instances the hardness and the gross markings of a non-encapsulated tumor may closely resemble scirrhous cancer. [See illustrations in the *Archives of Surgery*³ (Fig. 21) (Path. No. 17012).]

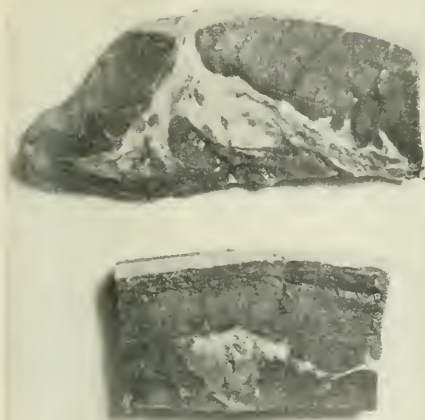


FIG. 18.—Pathol. No. 28940. Upper photograph shows section through nipple and breast; fibrous breast tissue surrounded by fat. Below, section of slightly infiltrating medullary carcinoma with a few comedones, surrounded by fat. For microscopic section, see Fig. 15a.

Medullary Carcinoma. This form usually occurs as a circumscribed tumor. The retraction and star-like appearance of the scirrhus are absent. It can always be distinguished from benign tumors by picking it with the knife, as it is always friable and granular (Fig. 18) (Path. No. 28940).

Cylindroma. This is a rare form of cancer, and is usually well circumscribed (Fig. 19) (Path. No. 21010). The frozen section, however, is quite different from the encapsulated adenoma (Fig. 20) (Path. No. 21010).^{5 6 7}

Cancer Cyst.^{2 5 6 7} A detailed discussion of this malignant lesion will have to be postponed. I have described it briefly in *Binnie's Surgery*.² The cancer cyst never has a blue dome. When it is nicked one can recognize malignancy by the thick wall or by the contents of the cyst, which is either blood or a thick grumous material.

The Benign Papillomatous Cyst.^{2 5 6 7} I find that this tumor has given operators more difficulty than any other benign lesion of the breast, because in the majority of cases they have either removed the breast or performed the complete operation for cancer. In my cases which I have explored I have never found a blue dome. The dome is gray. When opened, the cyst may contain blood, but one always finds within the cyst

a distinct papilloma. In cancer there is never a distinct benign papilloma. When the benign papillomatous cyst is excised with a zone of breast the wall of the cyst forms the base of the papilloma, and there has been no infiltration of the breast beyond. Now and then the entire cyst is filled with the compressed papilloma, and this tumor resembles closely the medullary carcinoma. It is only the distinct cyst wall which surrounds it that allows differentiation. Frozen sections of the papilloma within the cyst are very confusing.

The benign papillomatous cyst is not an infrequent tumor. I have records of some 45 cases, while during the same period we have about 34 cases looked upon as cancer arising in a papillomatous cyst. I believe, however, that a careful study of the cases, palpation before operation, and inspection at the exploratory incision should allow one to recognize the majority of the benign papillomatous cysts.

The important thing to remember is that when one is in doubt, the complete operation for cancer should be performed.

I have worked out roughly that if surgeons can recognize the blue-domed cyst, the distinctly encapsulated adenoma as benign, and remove the tumor only, and then follow the rule of performing the complete operation for cancer in all other cases, they will unnecessarily remove the breast for benign lesions in only about 15 per cent. of the cases. I am also inclined to the view that as they become more expert in palpation and pay more attention to the gross appearance they will gradually become able to recognize the distinctly benign non-encapsulated adenoma and areas of chronic mastitis and small areas of tubercular mastitis, and the distinctly benign papillomatous cysts. I am also inclined to the opinion that publicity will increase the relative proportion of these more difficult to recognize non-encapsulated tumors of the breast. My experience during the past two years confirms this belief. When I wrote my chapter in *Binnie's Surgery* in 1917 I had never seen tuberculous of the breast without sinus or abscess. Since then, with rare exceptions, tuberculous of the breast has presented itself clinically as mastitis or as an irregular palpable tumor, and when explored the usual gross appearance of tuberculous—abscess or caseation—was not seen. The non-encapsulated adenoma and areas of chronic cystic mastitis have increased rapidly in numbers since 1917. The most rapid increase has fortunately been in the blue-domed cyst.

Conclusions. Now that women are responding to the message of the profession in regard to lumps in the breast, and now that the general medical profession is no longer a party to delay, surgeons will see breast lesions in their earliest stages.

More attention must be paid to the clinical



FIG. 18a.—Pathol. No. 28940. Microscopic section showing carcinoma and comedo-adenoma.

history and to the examination by inspection and palpation, first, to exclude the group in which operation is not indicated; second, palpation of a definite lump must be developed to a method of greater precision; third, when tumors must be explored, surgeons must learn to recognize the benign type in which excision of the tumor with a zone of breast is sufficient for the protection of the patient.

For the present the mistake that should never be made is an incomplete operation for a malignant lesion. A mistake which is, and must be made, in a certain group of benign lesions difficult to recognize, is the complete operation.

I am inclined to the conclusion that the majority of trained surgeons can, and do, recognize cancer of the breast at exploration, and also the distinctly encapsulated adenoma and the blue-domed cyst.

We should encourage more detailed papers on the group of benign lesions difficult to recognize, because they are not encapsulated, or because they are not blue-domed cysts. For this reason communications, such as Dr. Lee's of New York, in a recent number of *Surgery, Gynecology and Obstetrics* on traumatic fat necrosis are of great value, and also the study of Kilgore¹⁰ on Paget's disease of the nipple, and a recent paper by Trout of Roanoke, read before the Southern Surgical Association, on the relation of malignant disease of the breast to pregnancy, and the excellent articles of Bartlett¹¹ from Terry's clinic in San Francisco.

There is ample material in the large clinics of this country to form the basis of such papers. Operators throughout the country need, and will welcome, helpful contributions of this character.

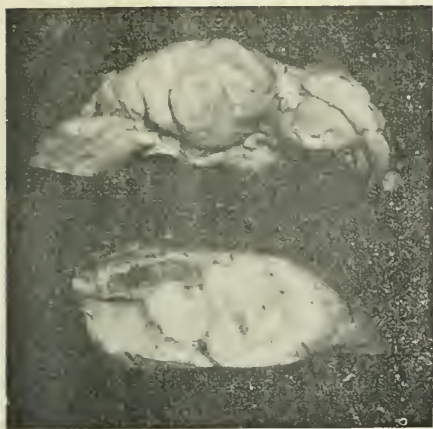


FIG. 19.—Pathol. No. 21010. Section of a circumscribed, but not encapsulated carcinoma of the cylindroma type, surrounded by normal breast. For microscopic section, see Fig. 20.

ADDENDUM.

Note: July 29, 1922.—Since this paper was read in February, five months ago, I have presented it to at least a dozen audiences, and the discussions lead me to emphasize the following points:

1. The examination should be made without any knowledge of the history or of the breast involved.

2. At the examination palpation is the essential feature. First, to differentiate the indefinite from the definite single lump and, second, having found a definite lump to try in every way to recognize any palpable sign of malignancy.

3. At the exploratory incision the blue-domed cyst and the encapsulated adenoma should be recognized by their gross appearance.

I have recently explored a cancer cyst which had somewhat the coloring of a blue dome, opening the cyst, it contained thick grumous material; wiping this out, nodules of cancer could be seen and felt in the wall. In a second cancer cyst explored in the same week, the dome was gray, not blue, the contents bloody; wiping this out, one could feel and see cancer nodules in the wall. Cancer cysts, therefore, can be differentiated from the blue-domed cyst by their contents.

The galactocoele has an opaque, white dome; its contents are creamlike or like milk. Cancer never appears in this form.

4. Scirrhus and medullary carcinoma are never encapsulated and have their typical gross

appearance as described and pictured in this paper. This is also true of the comedoadenoma, with and without cancer, and the colloid cancer.

5. When the explored tumor is not a blue-domed cyst or an encapsulated adenoma and not a cancer cyst, or a non-encapsulated area of solid cancer, it will appear as a non-encapsulated area, with or without minute cysts or dilated ducts. I have described these tumors in detail, in the *Archives of Surgery*³. Unless the surgeon has sufficient experience to be certain of the benignancy from the gross appearance, and frozen section, the complete operation for cancer should be performed. I am inclined to the view that, as surgeons and pathologists learn to recognize the gross and microscopic appearance of the various stages of so-called chronic cystic mastitis as a benign lesion, they will be able to differentiate the nonencapsulated tumor of the benign adenoma type from the same lesion with areas of cancer.

To repeat, until they are able to do this, all these lesions should be treated as malignant.

6. The recognition of the benign from the malignant papillomatous cyst apparently offers such great difficulties to the majority of surgeons and pathologists, that I reserve this problem for another communication.

7. Recurrence in, or in the region of, the scar is due to late intervention or bad surgery. I have had a large opportunity to observe the operations for cancer of the breast as performed in this country. My observations lead me to conclude that the surgery is good, but the bad results are due to late intervention.

8. To improve the results after operations for cancer of the breast, there must be earlier intervention of good surgery. This can be accomplished by publicity only. Good surgery will be of little avail without publicity.

9. The mistake that should never be made is an incomplete operation for cancer. The operation must never be in two stages.

10. The mistake that cannot always be avoided is the complete operation for cancer in doubtful cases.

As the operating surgeon pays more attention to gross pathology and has his tumors of the breast submitted for diagnosis to more competent pathologists, these mistakes in his clinic will be reduced.

11. When the surgeons of this country become as good diagnosticians as they are operators, I am confident that the number of women who lose their breast unnecessarily, will be reduced, and the number who are subjected to complete operation for tumors that are not malignant, will also be greatly reduced.

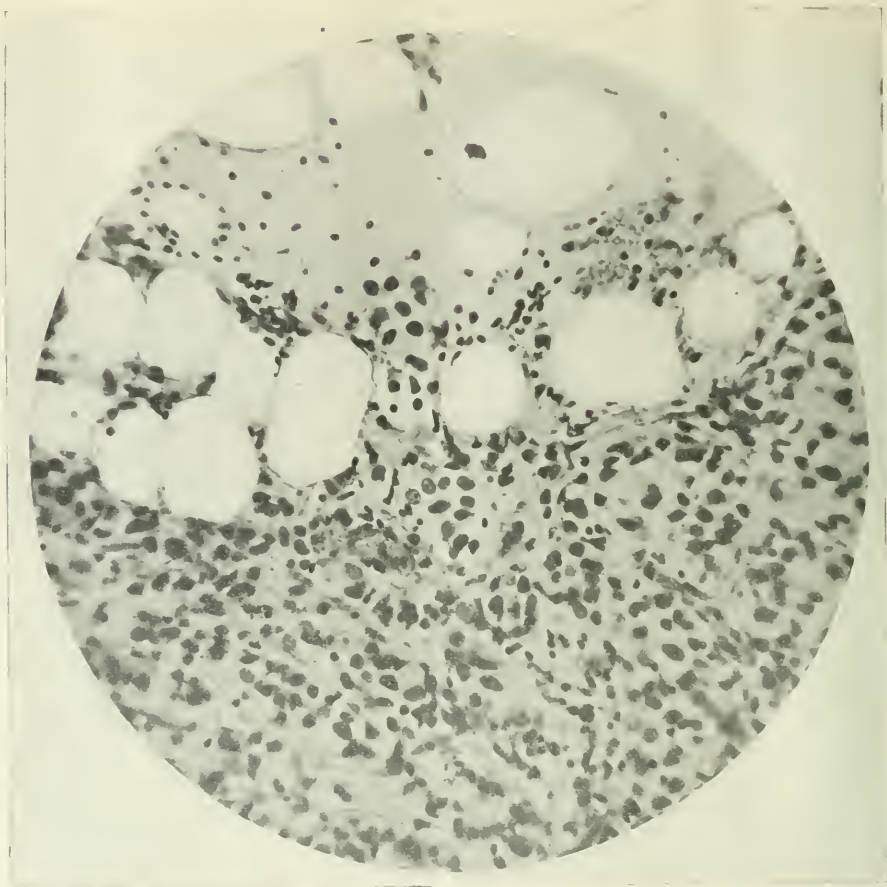


FIG. 20.—Pathol. No. 21010. Microscopic section showing cylindroma (a rare form of cancer of the breast) infiltrating fat.

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DISCUSSION.

DR. S. BERT WEIBACH: Dr. Bloodgood has illustrated the way in which advances must be made in clinical pathology. The surgeon must become his own pathologist, or at least he must follow his pathologist through. It is a fact that many pathologists become more skillful with their eyes and fingers than many surgeons, and the secret of some pathologists' ability to make diagnoses from frozen sections lies partly in their ability to make a diagnosis with their eyes and fingers. The ability to interpret gross appearances is a great asset and every surgeon should become enough of a pathologist to do so.

Some of the points that Dr. Bloodgood brought up are easily explained pathologically; for instance, his criteria for the gross appearances of malignant

tumors, the contraction and the dimpling of the skin. New epithelial growths cannot grow independently of connective tissue. Newly formed connective tissue (*i.e.*, stroma) must contract, and it is this contraction that produces the drawing in of adjacent fat tissue and dimpling of the skin.

Some of the slides that Dr. Bloodgood showed as doubtful cases of malignancy revealed the diagnosis of benignancy on the same slides. One, in particular, showed very definitely the smooth muscle accompanying the glands in the carcinoma-like area. Gland-like structures in adenomas of the breast, in growing, carry with them a supporting tissue which is a characteristic of gland structures from epidermal appendages, that is, a layer of smooth muscle. This was pointed out to me years ago by Dr. Mallory. In Dr. Bloodgood's slides the supporting elongated cells with very prominent fibrils—the smooth muscle accompanying the growth showed clearly. This characteristic structure is a very important criterion in the distinction between benign and malignant growths of the breast.

I do not know if Dr. Bloodgood meant to infer that patients who were alive many years after operation did not have malignant tumors. I think that some of these cases showing great injection of breast ducts by epithelium without stroma formation are most difficult to diagnose. Probably every pathologist remembers cases of proved malignancy where there was no demonstrable invasion of the connective or fat tissue in the initial growth. We have a belief that some malignant tumors may for a time grow entirely within the ducts.

DR. ROBERT B. GREENOUGH: We recognize that what we have heard tonight is the fruit of thirty years of remarkable industry combined with what is undoubtedly the most abundant material and largest experience in the surgical pathology of these diseases of the breast that there is. Dr. Bloodgood divides various borderline cases into a large number of different groups. Most of us have to content ourselves with the general statement that the epithelium of the breast in a woman over thirty-five shows an instability of growth which is a characteristic feature of that tissue. The expression of that instability of growth takes place in the production of a group of lesions, shading one into another, but verging more and more toward what pathologists like Dr. Wolbach recognize without question as cancer. The early stages of unstable growth may be either in the form of encapsulated tumors, or there may be diffuse changes throughout the breast which we, for lack of better knowledge, call cystic disease or chronic cystic mastitis. As those changes go on they appear to approach more and more toward malignancy, and although the estimated occurrence of malignant disease in these earlier conditions varies in different clinics they do not vary very much, and it is quite generally conceded that cancer is likely to develop in those cases if let alone and watched for an indefinite period. The doctrine in surgery for a long time has been that a tumor in the breast of a woman of cancer age should be regarded as malignant until it is proved something else, and no matter how skillful we may think ourselves in diagnosis from external examination, we must learn two things: first, that we are human and fallible and we may be mistaken in our diagnosis, and second,—a point which I don't think we always appreciate,—that even if we are correct in our diagnosis of a benign lesion, the fact that it is benign may give the individual assurance against the occurrence of cancer, which is false because later there may develop cancer reaching proportions such that radical cure is not possible, while the patient slumbers under the assurance that her condition is probably not malignant. It seems that those two possibilities are sufficient to justify operative treatment and the removal of tumors of the breast in women over thirty-five. Regarding the question of an explora-

tory incision and its safety or danger to the individual, it is generally conceded that to cut into a breast tumor, remove a piece of it, close the wound and send the tissue to the pathologist is bad for the patient. There is experimental evidence that a clean incision into a tumor may not spread the disease more quickly than it was spreading itself. On the other hand, trauma of any sort, massage or rubbing, will spread the tumor to its metastatic areas more rapidly than if let alone, so I think it is fair to say that any interference with the tumor should be avoided, but more particularly interference which involves a delay period before radical measures are employed. On the other hand, direct incision into the tumor can be done with the minimum of danger to the patient if it is necessary. If there is a strong suspicion of cancer, or if the diagnosis of cancer is made in an older woman, there is ample justification for treating it as cancer, but in younger people an exploratory incision is a measure which can be done with safety. In our series from the Massachusetts General Hospital, cases from 1912 to 1914, there were four in whom that was done. They were favorable cases. They were all explored, at the operation the diagnosis was confirmed, and the operation completed, and all four cases were well six or more years after operation. Of the two cases in which operation was done in two stages, with a period of delay between, both were dead within a year.

DR. F. B. LUND: I must join the other speakers and thank Dr. Bloodgood for many years of most valuable instruction, not only in breast tumors, but also in the pathology of bone. These radiating lines of fibrous tissue Dr. Wolbach has spoken of, that draw in through the fat to the cancer, give the tumor itself a certain angular feeling, and I think that, as a general principle, cancerous tumors feel irregular and angular in shape while benign tumors do not. A man who has seen a good many of these cases and has followed the pathological diagnosis through and seen the sections, can make a better diagnosis on the gross section than the average man can on the frozen section. I do not mean the section sent to the pathologist carefully stained and examined, but the frozen section. The pathologist does not always succeed in making the section in the place where the cancer may be, and an experienced surgeon can, in 95 out of 100 cases, tell what the thing is. On the other hand, I do not believe in cutting into these tumors if you can possibly help it and there are only a few of them which you will have to cut into to decide whether it is cancer or not. If you have to do this, you should go over the surface with a canter before you proceed with your radical operation. Never do a two-stage procedure of sending a specimen to the pathologist and having it come back. Of these little fat necroses which have been described by Dr. Lee of New York and which Dr. Bloodgood mentioned—I have had two cases; one was in a woman with a cancer on whom I did a radical operation, and I was very well satisfied with the prospect. Within six months she came back with three or four little lumps under the skin like lima beans. I could not think of anything but recurrence, but when they were taken out they proved to be necrotic fat. The other case of fat necrosis occurred in the breast of a woman who had had a uterine operation with hemorrhage and had a needle put into the breast for the injection of salt solution. I removed the breast tumor, which showed at operation what it was.

DR. BLOODGOOD (in closing): I would like to express my appreciation of Dr. Wolbach's remarks. He belongs to the younger generation of pathologists and I don't know that I have ever heard anything from the clinics in general pathology which pleases me more than what he has said. I believe it is the beginning of team work between surgeons interested in pathology and general pathologists. We all agree that the Medical School must have the university

atmosphere and I think that those who do the work chiefly in pathology and physiology need contact with the practical side of things, and those who work on the more practical side need the help of the scientific side of medicine. In the past the team work of the practical man and the scientific man has not been as good as it should be. He is the first general pathologist, as far as I know, who has said the surgeon ought to be his own pathologist. I am particularly interested in what he says of the presence of smooth muscle. It is just those little things we need to know in our diagnosis.

I want to call attention again to what Dr. Greenough said about the nature of certain changes we find in the breast. We do not know whether they are cancer or precede cancer. If publicity brings every woman to us the moment she feels a tumor and we do a complete operation for cancer and that tumor is cancer and the glands are not involved, the best we can offer is 70 per cent. A comparison with our figures (and we have a very large group) with Dr. Greenough's figures shows that they are practically identical.

VARICOSE VEINS AND ULCER: METHODS OF DIAGNOSIS AND TREATMENT.*

By JOHN HOMANS, M.D., F.A.C.S., BOSTON.

[From the Surgical Clinic of the Peter Bent Brigham Hospital.]

THE operative treatment of varicose veins of the legs has never had a very good name. The palliative treatment requires a good deal of effort to accomplish very little. Many patients are able to enjoy life with no treatment at all. It may be that the time, thought and skill, which successful surgery requires for the relief of a common condition annoying as a rule rather than incapacitating or dangerous, is not fully realized either by the laity or the profession. In this instance even more than in most surgical diseases it is true that routine operations will cure the average patient but that unusually careful treatment alone will secure the high proportion of good results which represents successful surgery. The reasons for this statement will be made clearer when the nature of the condition and the principles upon which its treatment is based are considered.

ANATOMY.

Anatomically, the veins in which we are interested are the great and lesser saphenous systems, which carry the returning venous blood from the superficial tissues of the lower leg (Fig. 1). The great or internal saphenous vein collects tributaries from the front and inner side of the calf, and passing up the thigh as a large single trunk, empties into the femoral vein at the saphenous opening. The lesser or external saphenous drains the back and outer side of the calf and joins the popliteal vein in the upper part of the popliteal space. All the veins of the legs, like

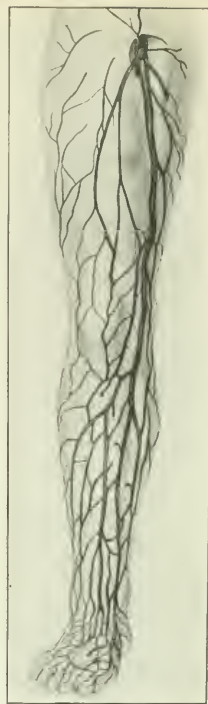


FIG. 1.—The superficial veins. The great or internal saphenous vein and its branches. Note the position and relations of the perforating veins. The lesser saphenous which drains the back of the calf, emptying into the popliteal veins, is not shown. (Published by courtesy of *Surp., Gynec., and Obstet.*, 1916, xxii, 143-155.)

those of the arms, are furnished with bicuspid valves so set as to allow the blood to flow only toward the heart.

As a sort of safety vent for the surface veins a number of short vessels pass from the larger trunks in the calf to the deep veins which accompany the great arteries. To reach the deep veins these vessels necessarily perforate the fascia covering the muscles, and their valves are so set as to allow blood to flow only from without inward, that is, from the surface to the depth.

As to the deep veins, it is only necessary to realize that since they care for the very active muscles of the calf and thigh they must carry a considerably larger volume of blood than those of the subcutaneous tissues. They are quite capable of disposing of the surface blood when the superficial veins are disabled.

PHYSIOLOGY.

Physiologically, the means by which the blood is carried up from the legs to the heart is particularly interesting (Fig. 2). There is, of course, a slow push from the capillary circulation. There is also suction from above, trans-

*Read before the New Hampshire Surgical Club, West Manchester, April 25, 1922.

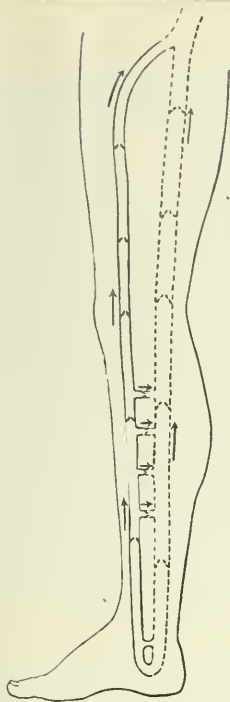


FIG. 2.—Diagram showing the normal direction of blood current in the superficial and deep systems. Perforating veins connect the two and carry blood toward the deep vessels only. The diagram suggests roughly the relative capacity of the two systems. The free anastomosis between them in the foot is indicated.

mitted through the great abdominal vessels by the rhythmic pumping of the breathing and the action of the heart itself. But the force mainly responsible for sending the venous blood along lies in the action upon the vein walls of the muscles of the legs. The valves of the veins divide them into a series of chambers. Blood can pass up from one chamber to another but never back. Therefore any muscular motion which compresses any segment of a vein will force blood into the segment next higher. With this mechanism the main channels are most concerned and for it they are particularly adapted, since every entering branch has a valve at its root, and thus none of the muscular energy is wasted in driving blood from the large veins back into their tributaries. It is easy to see that in comparison with the deep veins, the surface vessels are at a real disadvantage. The deep veins are surrounded by muscle or lie between muscle and bone. Thus muscular pressure is applied to them directly. The surface veins lie in the superficial fat outside the deep fascia and are covered only by the skin. Therefore their walls are less actively supported and the pressure by muscle contraction acts on them

only because they are enclosed within the comparatively inelastic skin. It is doubtless to make up for this inferiority that the perforating veins of the lower leg are supplied. No one need doubt the importance of muscular movement in the venous circulation of the leg who stands perfectly still long enough to feel the tingling discomfort of the ensuing engorgement.

ETIOLOGY.

If we consider, as we certainly should, that a varicose vein is simply one whose valves are broken, it is easy to understand how the wear and tear of life brings about the disease. The weight of the column of blood resting upon any one valve is something which it can bear very comfortably, but let this strain be unduly prolonged as in occupations which require long standing, or let it be magnified by anything which forces back the blood column, as in conditions of increased abdominal pressure, and valves are apt to give way. When the abdominal muscles are set, as in heavy lifting, there is added to the weight of the blood column above the topmost valve, in the case of the femoral or the great saphenous vein, this increased intra-abdominal pressure. You may sometimes notice even on coughing a slight enlargement and a definite palpable thrill in the great saphenous vein just below Poupart's ligament. When there is no evidence of varicosity at a lower level this phenomenon may lead you to a diagnosis of femoral hernia.

We start life with fifteen to twenty valves in the main saphenous trunk from ankle to groin. There is usually additional protection in the presence of a valve in the femoral vein above the entrance of the saphenous. Since the great abdominal veins have none, increased abdominal pressure acts first on the topmost valve and here the breaking down in all probability begins. Thus the occupations calling for heavy and sustained lifting are usually responsible for the varicose veins of men. In women the association of the varix with pregnancy is exceedingly common, though just how the engorgement of the surface veins is brought about, as it frequently is, in early pregnancy before abdominal tension is much increased, is not at all clear.

Varix may originate in two other ways. In some individuals of either sex it appears in youth or at the time of puberty, presumably on account of some malformation of the vein walls or of the valves themselves. But the most distressing form of varicose veins, the one most intractable to treatment and prone to ulcer, arises from phlebitis, such as the milk leg after childbirth, or the phlebitis of typhoid fever. The infection and clotting are followed by a restoration of the main channel, but the valves are usually crippled and the vein walls thickened. Such veins, though small, are just as

"varicose" as the large tortuous vessels which are so familiar.

PATHOLOGY.

Only a word about pathology. As the valves fail, the veins dilate, and the nutrition of their walls suffers. Scar tissue begins to replace their smooth muscle and elastic fibres. They become elongated and distorted. Thus tortuous and sacculated areas are formed. Even calcification may occur. In such veins the blood can pour down more easily than it can mount up, and until elevation of the legs enables it to pass along or until it is slowly pushed up by the capillary blood behind, it stagnates (Fig. 3).

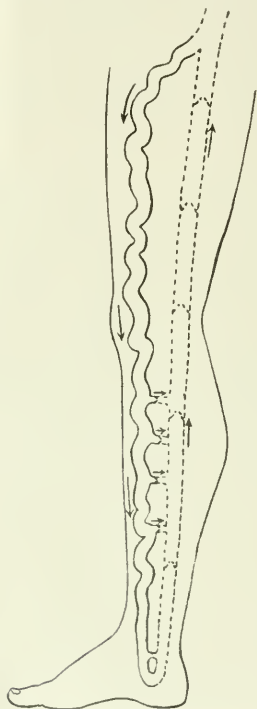


FIG. 3.—Diagram showing the direction of the blood current in varicose veins. Blood flows down the surface veins. The perforating veins carry blood from the varicose surface vessels to the deep system. The deep veins do additional work.

The pressure within such vessels is increased according to the height of the column of blood above any given point, but on coughing or straining it is, of course, enormously magnified. Hence, the occasional rupture of a varicose vein. If the perforating veins are equally varicose, as may occasionally be the case, stagnation and back pressure are still farther intensified, since the deep veins, which, practically speaking, are never diseased, cannot then help, and may even contribute some of their load to

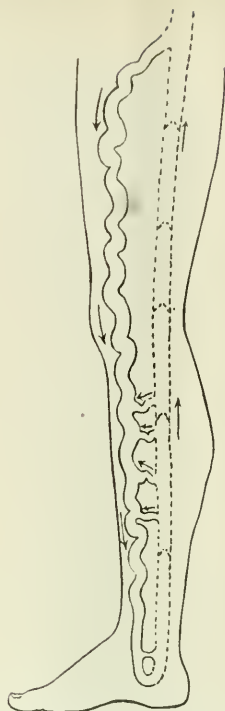


FIG. 4.—Diagram showing the direction of blood current in superficial varix with incompetent perforating vessels. The perforating veins add to the disability of the surface vessels.

surface vessels (Fig. 4). When, however, the perforating veins are competent, and particularly when varix develops slowly, there occurs what amounts to a collateral circulation (Fig. 5.) This may be so efficient that the only sign of varix is a single great tortuous trunk passing down the thigh to the inner calf and ankle. The skin of the entire area may then be well nourished. But if the stasis is more widespread and considerable areas of skin are bathed in stagnant blood, other changes follow which lead to ulcer.

ULCER.

Ulcer is the most common complication of varicose veins. To establish it an injury plus infection is necessary, but the stage is always set. The first sign of impending ulceration is usually the pigmentation which appears in larger and smaller patches upon the front and inner sides of the lower leg (Fig. 6). This is the region of greatest stasis since the long column of blood reaching to the heart is above it and there is not the free anastomosis with the deep circulation which is present in the foot. The appearance of pigment, which is often ac-



FIG. 5.—Uncomplicated varix. The skin is everywhere well nourished. Note the dilatation at the saphenous opening.



FIG. 6. Varix showing the diffuse pigmentation of impending ulcer. Note the position of the pigmented area in relation to the single tortuous vein.

evitably becomes infected. The extent of the ulcer then depends upon the degree of malnutrition and upon the character of the treatment which is used.



FIG. 7.—Varix complicated by ulcer. Note the relation of the ulcer on the right and the pigmented area on the left to the varicose veins. Compare with Figs. 8 and 9 for demonstration that the perforating veins of the left calf are competent.

DIAGNOSIS. (Fig. 7.)

The appearance of fully developed varix is so unmistakable that only the refinements of diagnosis are important in coming to a decision as to the treatment. Since the blood readily pours down a varicose vein, the simplest test of the loss of its valves is suddenly to lower the leg which has previously been emptied of blood by elevation. This is easily done by placing the patient in a rocking chair, raising the leg as the chair tips back, and asking the patient to stand up as the chair tips forward (Fig. 8). The test was devised by Trendelenburg, the author of the position used so generally in abdominal operations upon the pelvis. The veins, of course, stand out tensely as the patient stands. But there is a very obvious refinement of this test which gives even more information. Before the leg is lowered, pressure is made upon the great saphenous vein in the thigh sufficient to prevent the flow of blood down it. When the patient stands, the vessels remain collapsed below the point of pressure and fill with a shock when the pressure is removed. This test is most conveniently carried out by passing a short length of gauze bandage about the upper thigh. The ends of the bandage are held as reins are held in one hand in driving. A half twist of the hand gives sufficient constriction and release is easily made (Fig. 9).

Suppose now that as the patient stands, the constriction is not released but maintained. If then the veins are seen and felt to fill quite rap-

panied by a shiny atrophy, is evidence of the irritation due to poor nutrition. Only a scratch or a blow is necessary to establish an ulcer, for the badly nourished tissue almost in-



FIG. 8.—The same patient shown in Fig. 7. The varicose veins have been emptied of blood.

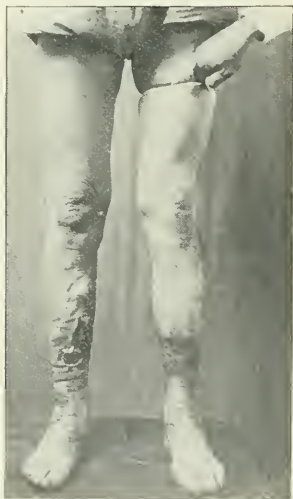


FIG. 9.—Demonstration of the constriction test. The same patient shown in Figs. 7 and 8. Note the constricting bandage about the upper thigh and the method of tightening the bandage. The varicose veins remain empty below the constriction at the end of half a minute.

idly below the constriction, they obviously have not filled with fresh blood from the arterial circulation, since this is a slow process requiring perhaps three-quarters of a minute. Nor have they filled by downflow from above, since the bandage prevents it. Therefore they must have filled from the deep veins by leakage of the valves of the perforators which normally, as you will remember, conduct blood only from without inward. This incompetence of the per-

forating veins indicates a greater gravity of the condition and is particularly important in planning the treatment of ulcer. For, if, as sometimes happens, an ulcer lies directly over one of these vessels, and if at operation only the superficial veins higher than the ulcer are removed, the presence of the leaking perforator will continue to lead to stagnation of blood in the region of the ulcer and failure to cure. However, even in varix uncomplicated by ulcer, the test may be valuable. The lesser saphenous vein perforates the popliteal space. Its branches on the back of the calf may, without showing much enlargement, communicate with the great saphenous. If it is varicose, it may alone be responsible for the filling of the surface veins below the constriction in the thigh. If early filling below the constriction is evident and varicosity of the lesser saphenous is suspected, the same test can be applied at the level of the knee. If constriction here now checks the filling below, the lesser saphenous is the leaking perforator and must be removed. It is not rare to find recurrences after excision of the great saphenous vein from failure to deal with this vessel.

Now to go back a moment. We have just followed the course of events when the superficial veins fill below the constriction upon lowering the leg and we have seen that such filling indicates a leak into the surface vessels from the deep. If, on the other hand, the superficial veins remain empty for a half minute or more after the leg is lowered, there is no such leak. We are then dealing with a pure surface varix and the treatment even in the presence of ulcer is simplified.

TYPES OF VARICOSE VEINS.

The relation to treatment of the examinations I have just described may appear more obvious if there is kept in mind a picture of the various types of varix. The common type, of course, shows the large dilated tortuous veins with which we are all familiar (Fig. 5). The plexus of large veins is most evident on the inner side and front of the calf, but the tortuous channel of the main vessel is frequently noticeable in the thigh as well. In women, whose subcutaneous fat is more abundant than that of men, the varicose vessel in the thigh is frequently palpable rather than visible. In that case its position may be detected by locating the impulse set up by tapping the tense veins of the calf, a procedure known as the Schwartz test. In men, however, the great saphenous vein is usually visible up to the saphenous opening, where a large sacculation is often present. Of this familiar type it may be said that the worse it looks the easier it is to treat. For while the varicose condition of the principal superficial vessels is gradually becoming established, there is usually developed sufficient compensatory circulation outside the great saphenous system to keep the skin well nourished. The

perforating veins are usually competent. The most the patient suffers from is a feeling of fullness and discomfort on long standing. When ulcer does occur, it usually "rides" upon a large vessel, and, unless it has been long and badly infected, is easy to cure. The Trendelenburg test shows immediate filling of the veins on standing. The constriction test shows, in most instances, no filling of the vessels below the constriction when the leg is lowered, since the perforating veins are normally fulfilling their function. Indeed, you will occasionally see a patient in whom the perforating veins are so efficient in their rôle of safety valve that, even in the fully erect position, the surface vessels remain relaxed below the constriction in the thigh for long periods.

The contrast to the common type is seen when varix arises after a phlebitis or when phlebitis attacks veins already more or less varicose. In such conditions the surface veins are often so scarred and shrunken as to be invisible. They may usually be palpated, however, as hard cords. Such dilated surface veins as may be evident are not the principal channels but distended tributaries ordinarily insignificant. Often it is not the visible veins which call attention to the disease, but the ulcer or ulcers which almost in-



FIG. 12.—A "freak." A varicose vein tributary to the gluteal vessels. In the thigh it is associated with a nevus which extends from the outer upper thigh to the front of the patella.



FIG. 10. Post-phlebotic varix. Note the absence of visible veins and the extensive areas of pigmentation.

variably complicate it (Figs. 10 and 11). Indeed, I venture to say that a diagnosis *not* of varicose veins and varicose ulcer, but of syphilitic ulcer is commonly made in such cases. I happen to have seen a considerable number of them, have found the Wassermann reaction neg-

ative, and have usually been able to get the history of phlebitis which confirms the diagnosis. Apparently two factors contribute to the formation of ulcers in these unfortunate patients. One is the quite general infection of the calf which accompanies the phlebitis and leaves the tissues badly scarred and poorly nourished. The second is the very common involvement of the perforating veins in the phlebotic process. Stasis and malnutrition are therefore magnified. Ulcers are common, often diffuse, and occasionally multiple. It is in this type of varix that the constriction test most often discloses rapid filling below the constriction. The test must often be made more by the sense of touch than by the sense of sight, since the surface veins are so often sclerosed and inconspicuous. In some instances, the filling of the veins on standing is equally rapid, whether the main vessel in the thigh is free or compressed.

The third type takes in what may be called the freaks (Fig. 12). This includes the unusual dilatations of vessels of the outer leg and thigh independent of the great or lesser saphenous systems. It includes such general dilatation of all the surface veins of the lower extremity, and of the abdomen as well, as arise without obvious cause. And it includes varix of the lesser saphenous vein alone, a condition hard to explain on a basis of back pressure, since one would expect the great saphenous system to be involved in all instances before the lesser.

This sketch may perhaps make clearer the reasonableness of studying and analyzing the con-

ditions present in any given patient suffering from varicose veins or ulcer. The importance of an accurate diagnosis will appear even more obvious when the choice of treatment is considered.

AMBULATORY TREATMENT.

First, a word about palliative treatment. This consists in so compressing by bandages the dilated surface vessels that they are kept emptied of blood. In this way the patient's sense of fullness and tingling is relieved and the blood is actually forced into channels capable of carrying it toward the heart. Efficient bandaging, and by the word I mean to cover the use of elastic or canvas stockings as well as of gauze and flannel rollers, may prevent the development of ulcer and will usually cure it when present. Soap and water cleanliness of a varicose leg is an indispensable accompaniment. The particular ointment applied to the ulcer is far less important than the pressure of the bandage. And in any case, no bandage, however efficient, can approach the effect of rest in bed.

If a varicose ulcer must be treated in the ambulatory manner, a most satisfactory arrangement is the use of the so-called "jelly" bandage. This consists of several layers of ordinary gauze bandage permeated with Unna's paste. An excellent formula for this paste is:

Zinc oxide,	10 gm.
Gelatin,	40 gm.
Glycerin,	120 cc.
Water,	150 cc.

The gelatin is dissolved in hot water by heating. Mix the zinc oxide with the glycerin. Put all ingredients together and let stand until hard, occasionally stirring. In hot weather the gelatin may be increased at the expense of the glycerin.

To be used, the paste is heated in a water bath until it liquefies, and is then applied as follows: The leg, which has been elevated for some time, is painted from toes to knee with the liquid paste. To this surface a smooth layer of gauze bandage is applied. Upon this, a second painting of paste is laid on, and in this way, three or four layers of bandage impregnated with paste are smoothly fitted to the leg. The heel is not included. After a few hours of drying, the jelly bandage is comfortable, flexible and very durable. It may remain in place for several weeks. The ulcer, if small and little infected, may be directly and permanently covered, but it is usually wiser to cut a window over it for the purpose of making local applications. The jelly bandage can also be used with advantage in convalescence from operation, especially when the patient is first getting about. In general, it may be said that though this particular dressing requires some practice and skill in application, it is far superior in every way to ordinary bandaging. But however successful any form of palliative treatment may be, it



FIG. 11.—Post-phlebitic varix. Note the crease on the inner face of the calf as evidence of the adhesion of the skin to a small thick-walled vein beneath. No veins are visible. The ulcer is directly tributary to the vein indicated by the crease.

never alters the basic varicose condition, and only while it is maintained does it prevent the recurrence of ulcer.

OPERATIVE TREATMENT.

Operative treatment aims to do away altogether with varicose veins. To be successful it must permanently break the column of blood between the great abdominal veins and the superficial circulation below. It only removes what is worse than useless, the varicose channels down which blood has been pouring to increase the labor of the deep veins. The work of the latter, far from being increased by excision of the varicose surface veins, is thus actually lightened. In carrying out the operation one should bear in mind, first, that the great saphenous vein must be most thoroughly eradicated at its upper end; second, that all wounds must heal perfectly; and third, that ulcers must be so treated that they cannot recur. Let us take up separately these three requirements.

The Removal of the Great Saphenous Vein. Recurrence after operation comes most often from a reestablishment of connection between surface veins remaining in the leg and the stump of the great saphenous. Therefore the vein must be tied and divided close to the femoral, and the several small branches which enter it in this region, both from above and below, must be disposed of as well. This is most conveniently

done through an oblique incision several inches long just below and parallel to Poupert's ligament. From this point on, the main channel may be stripped or excised by open dissection to a point below the knee. To all intents and purposes this is the whole operation. The removal of the distended veins of the calf, once all danger of back pressure from above is at an end, is only essential when incompetent perforating veins have been shown to be present. Both operator and patient are usually better satisfied, however, if the lower leg as well is dissected.

The Prompt and Sound Healing of Wounds.

Wounds of even normal legs heal perhaps a little less well than those of less dependent parts. Wounds of varicose legs are at a still greater disadvantage. Therefore if operations are to be uncomplicated by sloughing and infection and to lead to quick and complete healing, the tissues must be handled with the greatest gentleness and cleanliness. Incisions should always be carried down cleanly to the deep fascia. The skin edges should be held open with retractors and not continually seized with forceps. When a tortuous adherent vein is to be removed, it is better to turn up a thick flap and to remove the vein from underneath it than to follow the vein from the surface. This is particularly true and important for the calf, since the thigh vein is most easily eradicated with the Mayo stripper. In any case, it is most unwise to make an incision of any sort on the inner side of the knee, for a thick and unstable scar is apt to result. Use fresh sets of forceps and haemostats frequently. Seize the smallest possible bite of vessel in your haemostat. Use fine ligature material and leave wounds dry and without dead space. Then incisions will heal perfectly. There is almost no surgery in which poor technic is more heavily penalized. If you can perform a complete excision of the varicose great saphenous vein in an hour you will be operating quickly.

The Treatment of Ulcer. It is here, above all, that variations in treatment according to the tests already described may profoundly influence the result. Suppose that a small and not particularly indurated ulcer "rides" on a large vein in the calf. The tests show that on lowering the leg while constriction is applied to the surface vessels in the thigh, the veins of the calf remain empty for a half minute or more. There are then no incompetent perforating veins. The usual operation of excision down to the ulcer region is carried out. It is unnecessary and undesirable to follow the vein through the ulcer or to excise the ulcer, since removal of the engorged vessel down to a point immediately above will cause it to heal permanently. Under the same conditions, but with a large and very much indurated ulcer, the decision may be more difficult. Here the infection and scar may be so deep that even removal of the vein which, so to speak, feeds it will not alone insure healing. The

ulcer may then be excised, and if the wound edges cannot easily be approximated, the raw surface should be skin grafted.

But now suppose that the tests disclose the presence of leaking perforating veins. The ulcer area may be widely pigmented and scarred. There may be one large or several small ulcers. Such are the conditions which frequently arise after phlebitis. Whatever decision is then come to in respect to the treatment of the ulcers themselves, the veins of the lower leg must be fully dissected and, as far as possible, the perforating veins found and tied on the deep fascia. This may mean dissecting in densely scarred infected tissues. It will usually mean the excision of ulcers down to sound tissues even if the dissection exposes bone, muscle or tendon sheath. Such dissections require the greatest gentleness and patience. Wounds must be very loosely closed. Operations may have to be done in more than one stage. The time and trouble is well spent if a working man or woman is given a sound, useful leg.

PHLEBITIS.

There remains to be discussed the treatment of phlebitis. I have already described the conditions which may arise after an acute inflammation of previously normal veins. During the attack itself the inner side of the thigh and calf are often red, swollen and tender. The veins themselves are clotted. The lower leg is infiltrated and oedematous. Evidently the process is a pretty general one, and I do not believe that at this time anything in an operative way can do other than harm. Elevation and rest alone are indicated. Even as the process subsides the most which can be done is directed toward the palliation of future trouble. To this end the patient should not use the leg at all until all signs of inflammation are gone. From then on for several weeks exercise of the leg in bed may be permitted. While getting up, the leg should never be allowed to hang down. Walking is better than standing. If swelling occurs, the leg must be kept elevated in every idle moment. Bandaging may be of great assistance. Probably the venous surface circulation is never to be what it was, though the deep circulation is rarely disturbed. In milder cases no permanent bad effects beyond a little swelling on long standing may be left. But when the infection and clotting have been widespread, the ulcers of the type I have already described are prone to occur even within a few months. No time or trouble is badly spent which mitigates at all the complications of phlebitis.

The phlebitis of veins already varicose is a different matter. The dilated vessels are tightly filled with clot; the skin about them is often red and oedematous; but the process is comparatively local. The acute stage usually subsides rapidly upon rest in bed though suppuration in some one part occasionally occurs. On the whole,

as soon as the worst of the process is over the best treatment is probably excision of the thrombosed veins. The only danger is the possible presence of the clot in the region of the saphenous opening, for in dividing and tying off the stump of the saphenous vein, a portion of the clot may perhaps be forced into the femoral. In that case a fatal pulmonary embolism will result. It is a safe rule, therefore, to postpone excision if thrombosis is evident as high as this point. Excision of the varicose veins should not even then, however, be abandoned since phlebitis is very likely to recur; and moreover, though one might expect the organization of a clot to lead to obliteration and so to the cure of varix, it never does so. When operating upon the thrombosed vessels, the inflamed skin adherent to them must be removed at the same time. Thus, unusual care in making and closing wounds is essential. In spite of this difficulty, operations for the removal of clotted varicose veins are remarkably satisfactory. They will usually save the patient considerable time and suffering.

SUMMARY.

Varicose veins of the legs are valveless superficial veins no longer able, when the body is upright, to carry blood in the direction of the heart.

The cause of varix is usually hard physical labor or childbearing. The valves may be destroyed by phlebitis, in which case the soft tissues of the legs are left more or less inflamed and scarred. Rarely and without known cause, the veins become varicose in early life.

The great saphenous vein, draining the superficial tissues of the inner side and front of the thigh and calf, is the vessel almost invariably affected.

It is possible by appropriate tests to determine the completeness of surface varicosity and to decide whether the perforating veins are diseased.

The deep veins are almost never varicose and may be counted upon to carry the load of the surface circulation.

Varicose ulcers occur because (1) the skin associated with varicose veins is often badly nourished, and (2) because it is easily traumatized and infected.

The familiar large tortuous type of varicose vein is readily cured by appropriate operation.

Ulcers are to be treated more or less radically according as varicose perforating veins are present or absent, and according to the degree of infection and induration surrounding the ulcer.

Post-phlebitic varix is to be diagnosed by a history of phlebitis, the presence of small sclerosed veins, and, in advanced cases, by the large amount of diffuse induration and oedema of the calf. Ulcer usually is present in this disease. It is intractable to palliative treatment and al-

most invariably requires excision. Operations upon post-phlebitic varix and ulcer are difficult and show a far lower proportion of cures than those performed for the simple type of surface varicosity.

Acute phlebitis in veins previously normal, such as occurs with typhoid and after childbirth, should be conservatively treated. Convalescence should be prolonged and restoration to active life slow.

Acute phlebitis affecting veins already varicose should be treated by excision.

PRESENTATION OF A BAS-RELIEF OF PROFESSOR D'ESPINE TO THE BOSTON MEDICAL LIBRARY.

On May 1, 1922, a letter was received by Dr. John W. Farlow, Librarian of the Boston Medical Library, from Dr. Charles G. Cumston, formerly of Boston, but now for a number of years Lecturer on Medical History at the University of Geneva, Switzerland, containing the following: "I am sending in your care a replica of the bas-relief of Prof. D'Espine struck on the occasion of his retirement from the University of Geneva, having attained the age limit of seventy-five years. Only forty replicas were made for his former students and friends. This replica I offer to the Boston Medical Library, and if you have no objection, I should like to have Dr. John L. Morse present it in my name, simply because he is conversant with Dr. D'Espine's work and would be able to make some interesting remarks in this respect."



The bas-relief, of which an illustration is here given, was presented to the Boston Medical Library on May 15, 1922, by Dr. Morse, who gave

the following sketch of the medical career of Dr. D'Espine:

"Dr. Cumston has kindly asked me to present to the Library this replica of the bas-relief of Professor Adolphe D'Espine, which was struck on the occasion of his retirement from the University of Geneva at the age of seventy-five years. Jean-Henri Adolphe D'Espine was born in Geneva, February 20, 1846, and studied medicine in Paris, where he took his medical degree in 1873. The title of his Inaugural Dissertation was 'A Contribution to the Study of Puerperal Septicæmia.' He was elected Professor of Internal Pathology at the University of Geneva in 1876, and later was made Professor of the Diseases of Children, both of which positions he held until his retirement in 1921. He is a corresponding member of the Paris Academy of Medicine, the Academy of Medicine of Turin and also that of St. Petersburg.

"In spite of, or perhaps because of, his pathological affiliations, he early became interested in children and their diseases, as is shown by the fact that in 1877 he published with Prof. Picot a 'Manual of the Diseases of Childhood,' which was for many years one of the standard books on children's diseases, not only in Switzerland and France, but also throughout Europe; it was translated into German, Spanish and Greek, and in 1885 was crowned by the Academy of Medicine of Paris. The last edition appeared in 1899.

"Professor D'Espine has always been an investigator and a leader in the advance in our knowledge of children and their diseases and has contributed many articles to medical journals, among the most noteworthy of which are those dealing with cirrhosis of the liver in children, diphtheria and scarlet fever. He is probably best known in this country because of the 'sign' which bears his name. This 'sign,' to which he first called attention in the fourth edition of his 'Manual' in 1889, is a whispering sound heard after the spoken voice over the spinous processes of the vertebrae. The term 'D'Espine's sign' has been applied to many other sounds heard in this region, but it is this whispering sound after the spoken voice which D'Espine described as his 'sign,' and for which he claimed priority.

"Although Prof. D'Espine was retired on account of having reached the age limit of seventy-five years, he is, I am informed by a number of people who have seen him within a year, very alert for a man of his age and mentally as sound as most men of fifty.

"I am sure that the Library will join me in thanking Dr. Cumston for his generous gift and in sending our best wishes to Prof. D'Espine for many years of activity in his chosen field."

In concluding, Dr. Morse presented to the Li-

brary an autograph letter written to him by Prof. D'Espine in 1921 containing references to the "sign" and its meaning. This letter, of which portions are here given in translation, will be preserved with the replica, at Dr. Morse's request.

Professor D'Espine writes: The description of the "sign" which I gave, and which is still accurate today, is contained in the *Bulletin de l'Académie de Médecine*, Paris, 1907, vol. 57, page 167. Another important communication, entitled "Note on the diagnosis of simple bronchial adenopathy in acute and subacute affections of the chest in children" appeared in the same journal for July 23, 1907. To establish the fact that the "D'Espine sign" is due to tuberculosis of the bronchial glands (which is generally the case), there should be the positive skin-reaction after the use of Koch's Tuberculin. This is almost always present when the "sign" has persisted for more than six months.

I may mention an article on the same subject by Dr. Ethan Allen Gray, of Chicago, in the Transactions of the Fourth Annual Meeting of the National Association for the Study and Prevention of Tuberculosis. And in the *Schweizerische medizinische Wochenschrift* for June 30, 1921, there is an illustrated article on the "D'Espine sign" by Dr. Th. Reh, with a very complete and up-to-date bibliography of the subject.



After the remarks of Dr. Morse, the different editions of the Manual of Dr. D'Espine and Dr. Picot were shown and also the periodicals containing the references mentioned in the letter to Dr. Morse. These books and journals and the bas-relief are all in the Boston Medical Library, where they can be examined by any one interested in the work of Prof. D'Espine. The fifth edition of the Manual in the Library is a presentation copy from the author to Dr. Cumston and the second edition was a present from Dr. T. B. Curtis, and is inscribed "With thanks and cordial friendship of your old chess-partner, Ad. D'E. Geneva, 27 Oct., 1879."

The bas-relief and the autograph letter were received with thanks by the Medical Library through its Executive Committee, and the Librarian was requested to convey to Dr. Cumston the gratitude of the Library for his generous gift.

JOHN W. FARLOW,
127 Bay State Road, Boston

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THE ELECTRONIC REACTIONS OF ABRAMS.

WHEN the Greeks placed their wooden horse before the walls of Troy, the Trojans marvelled at it as one of the wonders of the age, and accepted it, vastly to their discomfiture. When Dr. Albert Abrams, of San Francisco, announced that he had discovered a method of diagnosing disease by means of the electronic reactions of the body, he soon gathered about him a number of credulous individuals, mostly osteopaths, who accepted his doctrines and hailed him as "the greatest of all medical men."¹

These 300 or more² disciples of Abrams, scattered throughout the country, have organized classes in which, for a fee of two hundred dollars per pupil, they teach this method to others. *Pearson's Magazine* (June and July, 1922), has declared itself an ardent champion of this "revolutionary discovery," and, fortified by an article by Upton Sinclair, is prepared to force it down the throat of the medical profession.

This propaganda, written up in a sensational way and very cleverly interlarded with a few scientific and many pseudo-scientific facts, is bound to appeal to the less discriminating type of reader, especially if he suffers from some chronic ailment. The JOURNAL feels that the matter is of sufficient importance to be presented briefly but accurately, together with as much

comment as space will allow upon the probable correctness of the Abrams hypothesis.

The essence of the theory lies in the belief propounded by Abrams "that all material things are radio-active and that if sufficiently delicate apparatus can be devised, the degree of radio-activity of all matter can be measured in such a way that when its radio-active characteristics are ascertained, it would be possible from this data to determine the actual substance being examined, without ever seeing it."³

The radio-activity of the individual is manifested by his person, by a few hairs, by several drops of blood, or even by his handwriting! From the last, information can be gained as to the age, sex, approximate height and weight, condition of health and nationality of the writer. Even the nationality of his parents may be so determined. The radiations from an individual's handwriting pass toward him, if he is alive; if he is dead, his writing no longer "vibrates in resonance with him."⁴ This fact, however, does not prevent Abrams from ascertaining from the writing of persons long since deceased the nationality and the state of health of the writer. Dr. Samuel Johnson suffered from acquired syphilis (cerebro-spinal) and tuberculosis; Samuel Pepys, Edgar Allen Poe, Bret Harte and Henry Wadsworth Longfellow all had congenital lues.⁵

Not only the living body, but even bits of tissue hardened in 4% formalin, give the characteristic reaction for the disease which is present. Unfortunately the only diseases recognized thus far are carcinoma, sarcoma, tuberculosis, syphilis, colicsepsis and streptococemia.

The radio-activity which yields this information can be detected only by means of the reactions which it arouses in a human subject. These reactions consist in an increase in vascularity of certain abdominal organs; this manifests itself by increased dullness upon percussion over these organs, or by increased friction when a glass or rubber wand is rubbed across the overlying areas. We return to the original source for a description of the technic employed in eliciting these reactions.⁶

"Let us enter a laboratory where diagnosis is being made by electronic methods. In the subdued light, we see a young man stripped to the waist and the diagnostician is percussing various areas of his abdomen and carefully noting the variation in percussion sounds. This young man is called the 'subject' (or re-agent) and is facing the geographical west, which has previously been carefully determined by means of the compass."

"Beside the living human 'subject', the apparatus required is as follows:—The 'Dynamizer', which is merely a specialized type of condenser and consists of a little round black wooden box containing metallic contact points

from which grounding wires run to the water pipes or radiator. From the metallic top of this condenser passes a short insulated wire to the 'Reflexophone,' which is simply a specialized type of triple rheostat, capable of measuring up to a total of 61 Ohms. From this rheostat passes another insulated wire having on its free end a small aluminum electrode which is applied to the forehead of the young man being used as the 'subject.'

"Here, then, is the complete apparatus required for making our electronic diagnostic reactions; the Condenser (or Dynamizer), the Rheostat (or Reflexophone), and the automatic reflex nervous mechanism of the living human 'subject.' (Dogs and other animals have also been used experimentally and have given good results in this work.)

"PRACTICAL TESTS.

"Let us conduct an experiment with a piece of cancer tissue preserved in formalin solution in a small bottle. This bottle is placed in the Condenser and the Rheostat is set at 50, which has been shown to be the vibratory rate for carcinoma. It would be entirely immaterial whether actual cancer tissue were being used or some blood from a patient having carcinoma—the reaction would be the same, because the blood itself would tell precisely the same story as the cancer tissue.

"Previous to the experiment, the abdomen of this young man has been percussed all over, in order to determine his normal degree of resonance for that particular time.

"After the electrode from the Rheostat has been placed upon his forehead, the lapse of fifteen or more seconds is required, after which careful percussing will note a beginning dullness in an area about two finger-breadths in height and extending for perhaps six or eight inches across his abdomen at the level of the umbilicus. This particular area will soon become very noticeably dull upon percussing, and if the electrode be then removed from his forehead, the dullness will within a few seconds be replaced by the previous resonance. This test can be repeatedly made and will always give the same definite reaction upon the specified area of our 'subject's' abdomen.

"Many physicians find difficulty in differentiating between the delicate shades of pitch and tone when using percussing, and it is, therefore, fortunate that a way has been found whereby they may secure their electronic reactions by other means. During some of his constant laboratory experimenting Dr. Abrams found, by the use of a pith-ball charged with static electricity, that the area of his 'subject's' abdomen which was dull upon percussing was also throwing off more energy than the surrounding tissues, due to the increased vascularity of the underlying organs. The outcome of this simple discovery was perfectly logical, as, indeed, is every other step of the entire procedure when its fundamental

principles are intelligently understood. He found that if a glass rod or rubber wand, properly charged with static electricity by brisk rubbing with silk or wool, were swept over the 'subject's' abdomen, it would become noticeably retarded in its progress across that particular area which was dull upon percussing—all other areas being perfectly smooth. It has been found by prolonged demonstration that the glass rod or rubber wand method is fully as accurate as the percussing method, and may even be used at times for even more delicate reactions."

Once the diagnosis is established, the disease can be checked by imposing upon it its own "vibratory rate." This is done by means of a machine called the "oscilloclast."

The treatment of certain diseases by means of particular drugs has been successful because those drugs have possessed the same vibratory rate as the disease itself. It is not claimed for electronic therapy that it will restore damaged tissues to a normal condition. All that it does is to deprive the disease of its vitality. A cancer, for example, loses its malignancy when so treated.

The cleverness of the above outlined theory lies in its immunity from attack. It is so indefinite that you cannot get at it. A thorough physicist realizes its fundamental absurdities. If, however, he objects to Abrams' contention that "all material things are radio-active" Abrams replies that they may not be radio-active by ordinary standards, but when measured by his vastly more delicate tests they prove to be so.

As a matter of fact, radio-activity is as definite an attribute as fluidity. A radio-active substance sends out either corpuscular radiation (alpha or beta rays) or electro-magnetic radiation (heat, light, x-rays or gamma rays). These radiations exert perfectly well-known influences upon their surroundings. In no case do they exert influences which could be conducted along a wire as described by Abrams. If the little box which he describes as the Dynamizer were a condenser, the radiations could cause a leak of electricity between the plates of the condenser, providing a difference of potential is maintained between these plates. The only variation of this leak which we could recognize would be a change in the amount of current. Abrams' apparatus is not adequate to make such measurements.

It is a physical impossibility for such a device to transmit anything correlated with the "vibration frequency" of the electromagnetic radiations (if there be such); the corpuscular radiations do not have the attributes of vibration frequency.

Let us assume for the moment, however, that some vibratory rate is communicated to the subject.

This vibration is alleged to produce definite, constant areas of vasodilation within the abdo-

men. The areas over which dullness is supposed to appear correspond with no anatomical vascular units. What organ or combination of organs, for example, can give the carcinoma dullness—"An area about two finger-breadths in height and extending for perhaps six or eight inches across his abdomen at the level of the umbilicus"?³

The "reading" of the reaction by Abrams' methods of percussion or stroking with a wand is absurdly inexact. Percussion is never an accurate method of examination, for the force of the blow is not constant. The abdomen, furthermore, is a cavity in which, owing to intestinal peristalsis, areas of dullness are constantly changing. The degree of resistance encountered in stroking the skin with a glass or rubber wand is an even less reliable indicator; the friction developed depends upon the moisture of the skin, upon the muscular effort put forth in holding the rod against the skin, and upon the protrusion or retraction of the abdomen caused by the respiration. By means of these extremely coarse methods, a reaction admittedly too delicate to be measured by the finest instruments yet devised by man, is read not only qualitatively but quantitatively.

The application of the electronic reaction to the cure of disease is completely at variance with the modern theories (Twentieth Century or Einstein's Theory) of radiation, and is not in accordance with the experimentally established facts of absorption and emission of radiation.

It may be that Dr. Abrams knows of some method of research which makes unnecessary the laborious yet nevertheless definite experiments of other physicists. In the presentation of his theory he does not describe the fundamental experiments upon which so momentous a discovery as his should be based. In regard to the results of the clinical application of his theory he again rejects that method of scientifically controlled experimentation which, up to now, has been demanded of those who would establish new theories in the world of science. Abrams was offered a ward in a San Francisco hospital for the scientific demonstration of his methods, but he refused the opportunity.

Yet, free as it is from any true scientific basis, Abrams' theory, upon superficial acquaintance, has a distinct appeal. Its proponents take advantage of the recent popular interest in Radio, and impress the reader by the free use of such terms as "vibrations," wavelengths and electrons. Many of the alleged "cures" have been performed upon a pathological condition demonstrable by no other method. Relief of symptoms can, in many instances, be attributed to coincidence or to the power of suggestion wielded by such a novel method of treatment.

The outstanding fact is this: the Electronic Theory of Abrams, in its fundamental concep-

tion, is directly opposed to many of the experimentally established laws of modern science; it cannot be accepted unless one is ready to cast aside all of the accumulated evidence of physics and mathematics in favor of a naked hypothesis unsupported by a single basic experiment.

REFERENCES.

- ¹ Pearson's Magazine, June, 1922, p. 7.
- ² *Ibid.*, p. 8.
- ³ The Electronic Reactions of Abrams. F. A. Cave, D.O.M.D. Read before the annual convention of the Eastern Osteopathic Assn., Atlantic City, N. J., April 28, 1922. Endorsed by Dr. Albert Abrams, May 14, 1922.) P. 9.
- ⁴ Pearson's Magazine, July, 1922, p. 16.
- ⁵ *Ibid.*, p. 15.
- ⁶ *Ibid.* Reference No. 2, pp. 16-19.
- ⁷ Catechism of the Electronic Methods of Dr. Albert Abrams. F. A. Cave.

ANTIVACCINATION LECTURE BY RADIO

In the *Christian Science Monitor*, under date of July 29, 1922, there is the report of the lecture by Henry D. Nunn, manager and general counsel of the Medical Liberty League, sent broadcast by radio from Medford Hillside, Mass. In this message it is asserted "that the percentage of fatalities of smallpox epidemics has been greatly increased in the Philippines, where vaccination is preëminently extensive and that a similar tendency is observed in Japan." Further, it is claimed that vaccination is questioned by a large proportion of thinking people and that the great majority of those who believe in vaccination, including most physicians, take vaccination purely on faith without giving the subject any real thought.

He then propounds such questions as "what is vaccination?" and "is vaccination harmless or dangerous." He states that there were 10,000-000 vaccinations performed in the Philippines from 1905 to 1910, yet in 1918, 1919 and 1920 there were 162,000 cases of smallpox, of which 71,000 were fatal. During this latter period of three years he states that there were 15,600,000 vaccinations, but that smallpox is becoming more deadly in that country. He says that in the 20-year period ending in 1908 there were in Japan 288,000 cases of smallpox, of which 77,000 were fatal. He then goes on to say that among our soldiers in the Philippines from 1898 to 1920 there were 737 cases of smallpox, with a mortality of 261.

This lecturer evidently feels that his most telling argument lies in the fact that some persons who have been vaccinated have developed smallpox, but he neglects to state that in the few instances where smallpox has developed in persons who have had effective vaccination there are, as a rule, no deaths.

He states that smallpox virus is used to produce vaccine matter in this state through cultivation in the calf. He neglects to state, however, that the smallpox virus is only used to produce the initial inoculation of the calf and the vaccine finally applied to human beings is the end-product of successive inoculations for

a period of not less than five years, which is an explanation quite logical to well-informed physicians. He ignores the statements of Heiser in the *Journal of the A. M. A.*, July 1, 1922, and the letter to this JOURNAL by Major-General Leonard Wood, explaining the situation in the Philippines, and omits the great illustration of the record of vaccination in Manila, where smallpox was completely stamped out under the administration of this Government. The subsequent development of smallpox is perfectly well explained by the facts, for vaccination was for a period paid for at a per capita rate and the operators were more inclined to secure income than to perform vaccination. That a great deal of impotent vaccine has been used in the Philippines is undoubtedly true.

Our physicians will relish the coarse humor of the statement that physicians have not given the subject real thought. The statement is controverted with all modesty, but we can claim that Major-General Wood and Dr. Heiser are thinking men. Dr. Heiser is now in the Philippines and we shall soon have a different story.

The State Department of Health is in possession of much material on the whole subject which will probably be put before the public at an opportune time. For the comfort of our citizens it may be stated that no valid complaint has been made of the quality of virus prepared in this state during the past five years, although successful results may not follow in those cases where the arm has been treated with potent antiseptic washes.

A strong argument in favor of vaccination appears in the Statistical Bulletin of the Metropolitan Life Insurance Company for July, 1922. This great organization studies the problems of life and death in a scientific spirit for the purpose of applying knowledge to the business of life insurance. If it could be found that vaccination maims and kills and does not prevent smallpox, or, further, if vaccination conveys syphilis, this company would ally itself with those who are opposed to vaccination. The following quotation from the Bulletin shows the attitude of the company.

"Students of the prevailing worldwide menace of smallpox have seen many statements from anti-vaccination propagandists that the sad experience of the Philippines in 1918 and 1919 was a repudiation of the principals of modern public health measures for smallpox suppression. These statements are mere allegations that 50,000 smallpox deaths occurred in the face of systematic, persistent vaccination. The real truth is that the practice of effective vaccination had been exceedingly lax since the general campaign of 1909 or thereabouts and that most of the 50,000 deaths occurred among the children and other elements of the population unprotected by the indifferent pursuit of vaccination in recent years in the Islands. The age statistics given by Drs. Heiser and Leach for Pangasinan

and for Manila show a predominance of both cases and deaths among the unvaccinated. A careful review of these facts will make it possible for American health officers to refute the diligently circulated misstatements of the anti-vaccinationists."

PHYSICIANS IN CONGRESS.

It is an interesting fact that physicians as a class are not often inclined to seek political office. There are five hundred and thirty-one members of both houses of Congress, but only eight physicians are found among them, although one other has an honorary degree of M.D., as shown by the report of the National Health Council. An examination of the Congressional Directory shows the following named doctors of medicine: Senators, Lewis Heiser Ball of Delaware, M.D., from the University of Pennsylvania, 1885; Joseph Irwin France of Maryland, M.D., from the College of Physicians and Surgeons, Baltimore, fellow of A. M. A.; Seldon Palmer Spencer of Missouri, although a lawyer, has an honorary M.D. from Missouri Medical College, because he lectured on Medical Jurisprudence.

Representatives: John Joseph Kindred of New York, M.D. from Hospital College of Medicine, Louisville, Ky., also record of study in post graduate work at University of N. Y. and University of Edinburgh, graduating from the department of mental disease of the latter. He is also an LL.B.; Caleb R. Layton of Delaware, M.D. from University of Pennsylvania; Ladislav Lazaro of Louisiana, M.D. from St. Isadore's College, New Orleans; Archibald E. Olpp of New Jersey, M.D. from University of Pennsylvania; John William Summers of Washington, M.D. from Kentucky School of Medicine and Louisville Medical College, with post-graduate studies in New York, London, Berlin and Vienna; Lester D. Volk of New York, M.D. from Long Island Medical College, formerly editor of the Medical Economist. He is also a lawyer and has devoted himself to law since 1913.

Dentistry is represented by Representative Roy C. Woodruff of Michigan, Doctor of Dental Surgery, Detroit College of Medicine. Pharmacy by George W. Edmonds of Pennsylvania, a graduate of the Philadelphia College of Pharmacy; and Public Health by R. S. Malony of Massachusetts, who was formerly director of public health in Lawrence, Mass.

Lawyers make up the great majority of the members of both branches.

Considering the training and work of physicians, it is not surprising that few care to enter the arena of political contests. Physicians are aggressive in combating disease, but few enjoy that kind of controversy which is a feature of campaign debates; but whenever a well informed

physician becomes a member of a body that deals with the various problems of preventive medicine, his experience is of the greatest value to the state, and in many other departments of state activities he is better qualified than most men to appreciate meritorious measures and detect unworthy or dangerous motives. It is becoming more evident in these later days that one of the great concerns of the state lies in the mental and physical well being of its citizens, and a large percentage of physicians in legislative bodies would help in advancing sound laws and rejecting unworthy proposals. Massachusetts has been indebted in the past to a comparatively few physicians who have sacrificed financial interests in taking on legislative responsibilities. There will probably be others who will take up this work in the future, but there is little hope that the numbers will be large enough to have any commanding influence in Congress or in state legislatures.

NEWS ITEMS.

CHANGES IN THE FACULTY AT HARVARD.—Dr. Edward P. Richardson has been appointed assistant professor of surgery at the Medical School of Harvard University, Boston. Dr. Reginald Fitz, for the last two years professor of medicine, University of Minnesota, has been named associate professor of medicine. Leonard T. Troland, for six years instructor in psychology, has been promoted to an assistant professorship. Dr. Jacques Bronfenbrenner has been appointed assistant professor of bacteriology; Dr. Alice Hamilton, assistant professor of industrial medicine; Dr. George Shattuck, assistant professor of tropical medicine; Dr. David Cheever, assistant professor of surgery; Dr. Lloyd D. Felton, assistant professor of preventive medicine and hygiene, and Dr. James L. Gamble, assistant professor of pediatrics. Dr. James S. Stone and Dr. John Homans have been appointed instructors in surgery, and Drs. William H. Smith and Frank H. Hunt, instructors in medicine—*Journal A. M. A.*, August 5, 1922.

WEEK'S DEATH RATE IN BOSTON.—During the week ending August 5 the number of deaths reported was 169 against 158 last year, with a rate of 11.54. There were 20 deaths under one year of age against 28 last year. The number of cases of principal reportable diseases were: diphtheria, 45; scarlet fever, 8; measles, 40; whooping cough, 44; typhoid fever, 2; tuberculosis, 22. Included in the above, were the following cases of non-residents: diphtheria, 4; scarlet fever, 2; tuberculosis, 2. Total deaths from these diseases were: scarlet fever, 1; measles, 2; typhoid fever, 2; tuberculosis, 13. Included in the above, were the following cases of non-residents: tuberculosis, 2.

DR. SHEPPARD APPEALS.—Dr. Philip A. E. Sheppard, through his attorney, has appealed to the Supreme Court, asking that the action of the Board of Registration in Medicine in revoking his certificate as a registered physician be reviewed and set aside.

MALPRACTICE SUITS IN IOWA.—The Iowa State Medical Society reports that attorneys' fees for medical defense of its members amounted to \$4,914.94 for the previous year and that twenty-six cases are now pending.

Miscellany.

MEDICAL RESEARCH IN AMERICA.

DR. W. S. LAZARUS BARLOW, Professor of Experimental Pathology at the Middlesex Hospital of the University of London, who has been visiting the medical centers in this country, has stated that the resources for medical progress in America exceed those of any other country, especially along research lines. He explains this in referring to the wealth of the United States, together with extraordinary facilities. With justifiable loyalty to his own country he says that "We in England have the men, but we have not the facilities," and further raises the question as to the ability of Americans to develop men of a type equal to those of the older country. If such men can be found in America he concedes the probability of the greatest possible progress in medical research. He explains his meaning in allusion to facilities by referring to the Crocker Institute for Cancer Research, the Rockefeller Foundation and our supremacy in the amount of available radium.

We trust that we, as a nation, are as modest as any other, but we may be pardoned for believing that in addition to the facilities we are developing the kind of men who will carry on the highest type of research work.

THE LEGAL OWNERSHIP OF A STILL.

IN advertisements the dealers in stills recommend the purchase of these utensils for the purpose of distilling water, with the claim that distilled water is valuable in the treatment of some diseases or may be useful in eliminating the danger of water-borne diseases.

In order that physicians may know the law the following letter is published.

Treasury Department, Internal Revenue Service, Boston, Mass.

Mr. Editor:

Your letter of July 31st received. Section 18, Title 2 of the National Prohibition Act reads as follows:

"It shall be unlawful to advertise, manufacture, sell, or possess for sale any utensil, con-

trivance, machine, preparation, compound, tablet, substance, formula direction, or recipe advertised, designed, or intended for use in the unlawful manufacture of intoxicating liquor."

However, stills not intended for use in the production of Distilled Spirits may be legally purchased and possessed providing the purchaser of the still shall register the still with the Collector of Internal Revenue on certain forms prescribed. The procedure for the legal purchase and possession of a still is as follows.

The prospective buyer furnishes the vendor with affidavit in triplicate to the effect that the still he intends to purchase is not to be used for Distilled Spirits, but is to be used for some other purpose specified. The vendor then requests permission in writing, to which is attached one copy of the affidavit, from the Collector of Internal Revenue for the District in which he is located, to remove the still to the prospective buyer, which permission is granted. The Collector's Office then notifies the purchaser that he should register still on forms 26, which are furnished him. This completes the Federal requirements for the purchase and registry of a still.

Respectfully,

Malcolm E. Nichols,
Collector.

WISCONSIN BARS OUT FILLED MILK.

By legislation and court decisions the people are winning the fight against all so-called milk compounds. The decision in Wisconsin Supreme Court, July 20, in the now celebrated "Hebe" case brought by the Carnation Milk Products Company and the Hebe Company, upheld the state law forbidding the manufacture and sale of the compounds of skimmed milk and vegetable oil. The Carnation Milk Products Company, plaintiffs in the case, had sought to enjoin J. Q. Emery, dairy and food commissioner, from enforcing the law as against their product known as "Hebe."

This much advertised compound, which the Court found to be similar in taste, odor, appearance, consistency and manner of packing to evaporated milk, has been manufactured by the Carnation Company and sold to its subsidiary. The Hebe Company, for five years. It has been advertised by certain dealers in the newspapers of Wisconsin as "milk" or "compound of milk"; and has been sold by a number of retailers in Wisconsin as "milk" or "evaporated milk."

This and other compounds are shipped out of the state and advertised and sold by many dealers in other states as substitutes for milk. Labels on the cans of some of the compounds suggest that this product is practically equivalent to or better than genuine evaporated milk.

The supreme court based the right of Wis-

consin to outlaw "Hebe" and other milk compounds on the police power of the state, and declared the law valid for three reasons:

1. Because the law is intended to prevent fraud and deception.
2. Because it protects public health and welfare.
3. Because it promotes the general prosperity by preserving a great industry of the state.

Justice Charles H. Crownhart, who wrote the decision and the accompanying statement of fact, pointed out that the history of legislation relating to filled milk was most persuasive. "It will be seen," said he, "that the compounds have been considered inimical to public welfare by a large portion of the people of this country."

He pointed out that thirty-three states had adopted standards for condensed or evaporated milk; that the manufacture and sale of filled milk had been absolutely prohibited in New Jersey, New York and Wisconsin; that five other states had prescribed standards for condensed or evaporated milk that in effect prohibit filled milk; and that three states had passed laws which permit filled milk to be sold as "imitation milk."

LIFE TABLES FOR STATES AND CITIES, 1920.

The Department of Commerce, Washington, announces that abridged life tables based upon the 1920 United States Census will soon be issued showing conditions in 24 states and 14 large cities, also in the territory of Hawaii.

Altogether these tables cover 74 per cent. of the total population of the United States. They show for these states and cities taken as an aggregate, that the expectation of life at birth is 55.23 for white males and 57.41 for white females.

According to these tables the longest lived people in the United States are the Kansans, the expectation of life at birth in Kansas being 59.73 for white males and 60.89 for white females. Wisconsin ranks next with 58.77 years for white males and 60.70 for white females. If a record as a standard of comparison be desired it may be found in the figures for females in the county of West Sussex, England, whose expectation of life, the highest ever published officially by any country, was 63.05 in 1911-12.

Washington, D. C., outranks all other of the 14 cities with 53.83 years as the expectation of life for white males and 59.83 for white females. Pittsburgh comes at the foot of the list with 47.16 years for white males and 50.42 for white females.

For Negro males in the large cities the expectation of life is 37.92 as compared with 51.55 for white males, a difference of 13.63 years. For

Negro females the figure is 40.28 and for white females, 54.77.

For purposes of comparison and to indicate progress, a table is included covering the census years 1910 and 1920. This, however, is restricted to the "original registration states" which include the six New England States and also New York, New Jersey, Indiana, Michigan, and the District of Columbia, since figures for other states are not available as far back as 1910. Within this area the expectation of life for white males has advanced from 50.23 in 1910 to 53.98 in 1920, an increase of 3.75; and for females it has advanced from 53.62 to 56.33, an increase of 2.71.

EXPECTATION OF LIFE
Original Registration States

Year	Sex	Age 0	Age 32	Age 62
WHITE				
1920	Males	53.98	34.93	13.38
1910	Males	50.23	33.33	12.55
	Difference	3.75	1.60	.83
1920	Females	56.33	36.12	14.01
1910	Females	53.62	35.40	13.70
	Difference	2.71	.72	.31
NEGRO				
1920	Males	40.14	28.50	11.42
1910	Males	34.05	26.16	10.88
	Difference	6.09	2.34	.54
1920	Females	42.16	28.82	12.12
1910	Females	37.67	28.23	11.96
	Difference	4.49	.59	.16

For those males who have reached the age of 32 the expectation of life is 34.93 years, and for those who have reached the age of 62, it is 13.38. For white females it is 36.12 at the age of 32, and 14.01 at the age of 62. These life tables show a marked improvement in mortality conditions among all classes between 1910 and 1920, except at certain ages between 17 and 32, these exceptions being due to the influenza epidemic.

While the various mortality conditions show that the chances of living are much more favorable among whites than among Negroes, the improvement among Negroes between 1910 and 1920 was slightly greater than among whites. Had it not been for the influenza epidemics of 1919 and 1920 the expectation of life shown for 1920 would have been considerably greater for both whites and Negroes.

AFTER-EFFECTS OF WARFARE GASES AND THEIR RELATION TO TUBER- CULOSIS.

Lieutenant-Colonel H. L. Gilchrist, Medical Corps, U. S. A., has made a careful study of this subject and has prepared a report setting forth his conclusions.

The object of the dissemination of his opinions appears to be a desire to relieve the minds

of victims of gas poisoning of the impression that such persons are liable to develop tuberculosis for "large numbers of ex-soldiers are laboring under constant mental worry fearing" the development of tuberculosis. He endorses the opinion of Dr. John B. Hawes, Jr., who has emphasized the following points:

1st.—That it must not be taken for granted that a given process is tuberculosis, even with a suggestive x-ray;

2nd.—That the general appearance of robust health with marked symptoms, is against tuberculosis;

3rd.—That lung complications resulting from gas are usually basal and not apical processes;

and quotes from the report of Dr. James A. Miller, as published in the American Review of Tuberculosis, Vol. III, page 51, as follows: "There seems clear evidence that tuberculosis has not increased by the influence of the late war upon the armies and if anything, it has diminished the hazard of pulmonary tuberculosis, reports from France, Great Britain, Belgium and United States, all showing great decrease in tuberculosis during the later periods of the war.

His conclusions are given as follows:

1st.—That a large number of individuals were undoubtedly sub-standard in the beginning and would quite probably have broken down under any stress or strain.

2nd.—That the generally unknown effect of warfare gases has furnished many individuals a peg upon which to hang all manner of symptoms.

3rd.—That the period of time between our entry into the war and the present date, has offered ample opportunity for the onset of diseases totally unassociated with war wounds or exposure.

4th.—As to the incidence of pulmonary tuberculosis resulting from exposure to gas, it would seem that it is far from convincing that gas played any particular rôle in this connection and it is doubtful if the incidence of lung tuberculosis among ex-service men is much greater by reason of the part that gas played.

5th.—Those who claim to have developed tuberculosis a year after leaving the service, from conditions experienced in the Army, certainly have no basis for such assertion. They probably would have become tuberculosis patients even if they had never been in the Army.

6th.—There are two elements entering into this problem—one neurasthenie, where the men were gassed, usually very slightly, and believed sincerely that this was a factor in their illness; and second, mistaken diagnosis in many cases, especially those following influenza, in which, instances of unresolved broncho-pneumonia occurred, leaving nodular patches upon which the diagnosis of tuberculosis was frequently based on x-ray plates.

These opinions should furnish much encouragement to ex-soldiers and physicians.

BABY HYGIENE ASSOCIATION.

The report of this organization for ten months of the year ending December 31, has been distributed.

Twenty-two welfare stations are maintained where instruction in proper feeding, care, and hygiene of infants and children is given. Visits to homes by nurses and dietitians are made and coöperation with public health authorities and social agencies on matters pertaining to child welfare is carried on.

The statistics are of great interest:

There were 15,894 infants and children cared for and 142,139 home visits made.

The infant mortality rate among those cared for has been reduced from 17.87 in 1920 per 1000 to 12.54 in 1921.

The city infant mortality rate for 1921 is 77.85. Financial pressure necessitated the reduction of the nursing force in the autumn.

The receipts for the year amounted to \$72,760.54 and the expenditures, \$74,583.26.

The report should be read by every physician, health officer, and social worker. The results obtained should be common knowledge. This organization shows how lives can be saved and health maintained among infants and children. The comparison of the mortality rate among those cared for by this association and the average rate among other infants and children places a definite responsibility upon municipalities. If health is purchasable, as has been claimed, society at large may be regarded as responsible for a large proportion of deaths among infants and children. This organization shows results which should make us ashamed of the average infant mortality rate.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

MONTHLY HEALTH BULLETIN FOR AUGUST, 1922.

There were 163,684 visits made to 23,351 patients during the first 6 months of 1922, an increase of 15,756 visits and 2,655 patients during the same period last year. The increase occurred principally during the first three months, when there was an undue prevalence of acute illness.

Nursing visits increased by 19,078, while fewer purely preventive visits were made.

ACUTE AND COMMUNICABLE DISEASES.

Acute and communicable diseases this year jumped to 58% of the whole, from 38% of the entire work in the first half of 1921. This was a proportion encouragingly suggestive that the vital nursing needs of the community are being served. Influenza, pneumonia and other respi-

tory diseases are, of course, responsible for a large proportion of the increase, which, however, was also shown in some of the other diseases. There were 664 cases of measles as against 377 last year; erysipelas 90, against 46; a slight increase in diseases of the digestive system; 546 cases of burns, traumatism, fractures and sprains, against 403; also an increase in the diseases of the eye and ear. There were fewer cases of typhoid fever, whooping cough, chicken-pox and mumps.

CHRONIC DISEASES

There was a slight decrease in the proportion of chronic diseases, these being only 11% of the entire work. In opposition to the general decrease, cancer stood out, with 161 cases against 121 of last year.

MATERNITY.

Of the work, 24% was maternity work.

The results compare favorably with those of last year, the maternal death rate being 2.75 per 1,000; while the stillbirth rate for the prenatal cases dropped from 30 to 28.8 per 1,000 births.

The infant death rate under two weeks (prenatal cases) was 24.4 per 1,000, somewhat higher than last year.

There was a rather marked drop in the number of prenatal cases cared for, —purely preventive work,—2,695 this year, against 3,009 last.

There were 311 deliveries attended, 38 more than in the first six months of 1921.

BABY HEALTH WORK.

There were 1162 babies registered at the three Baby Health Clinics, a slight increase over last year. There was also a good increase in attendance at all these clinics.

The death rate was 15.1 per 1,000 babies under 1 year, a rate very much higher than last year, and one which accords with a general tendency throughout the country toward increased infant mortality.

No baby died of a digestive disease, while 5 babies died of pneumonia and 5 others who died were in a poor physical condition at birth.

CHILD HEALTH WORK

There were 469 children registered at the Child Health Clinic. Nine of the new children were found in perfect condition, the others averaging 2 defects.

Of the children who had diseased tonsils and adenoids, 58% were operated upon in hospitals and dispensaries.

Of the children with defective teeth, 58% were cared for, the majority of them at the Dental Clinic in the Hyde Park Health Center.

There were 15 nutrition clinics held in the Health Center for children found in the Health Clinic to be 7% or more under weight.

INCORPORATION OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER.

THE following circular of information appears in the *Campaign Notes* of this society for July, 1922:

"On May 15, 1922, the society was incorporated under the membership corporations law of the State of New York. This step was taken after the judiciary committee of the Senate had decided against recommending the incorporation by special act of Congress of the charitable, benevolent and educational organizations, including this society, which had applied for national charters.

"The certificate of incorporation of the society states that 'its operations are to be principally conducted in the United States of America' and describes its purposes as follows:

"To collect, collate and disseminate information concerning the symptoms, diagnosis, treatment and prevention of cancer; to investigate the conditions under which cancer is found, and to compile statistics in regard thereto."

"The plan of organization of the society is now—

"1. A board of directors of five members which will have charge of its financial and legal affairs.

"2. An executive committee of 20 members which will have charge of its general activities and its field work.

"3. An advisory council of not to exceed 100 members which will advise with the board of directors and the executive committee in regard to the activities and management of the society.

"The officers and directors of the society for the first year are:

"Dr. Charles A. Powers, president; Dr. Howard C. Taylor, vice-president and chairman of the executive committee; Calvert Brewer, treasurer; Thomas M. Debevoise, secretary; Elsie C. Mead, chairman of the finance committee.

"The officers of the advisory council for the first year are:

"Dr. Edward Reynolds, chairman; Dr. Clement Cleveland, vice-chairman; Dr. Livingston Farrand, vice-chairman; Dr. George E. Armstrong, vice-chairman; Dr. Rudolph Matas, vice-chairman.

"The society is now in a position to receive the Lasker Fund and other gifts which may be made to it."

The society has ready for distribution a copy of the certificate of incorporation and the by-laws. Under membership several classes are provided for: (a) Donors—who shall give to the society \$5000 each; (b) patrons—who shall pay dues to the society of \$50 per annum; (c) sustaining members—who shall pay dues of \$25 per annum; (d) annual members—who shall pay dues of \$5 per annum.

Any persons who shall contribute \$1 per annum shall, subject to approval of the board of directors, be known as associate members, but without voting privileges.

CURABILITY OF INSANITY.

DR. GENIE-PERRIN, secretary-general of the French League of Mental Hygiene, says that "the social scourge of insanity is both curable and avoidable, and that the asylum remains the tomb of chronic cases and thereby acquires the reputation of an institution at whose doors all hope must be abandoned. . . .

"The condition of a lunatic, from a medical point of view, is the same as was that of a tuberculous subject before the time of Pasteur. . . . Everything now done for tuberculosis can now be done for mental diseases. . . . The early diagnosis and preventive treatment of mental disorders can be and must be a matter for the organization and action of the state. . . .

"Since the psychopath is frequently a victim of self-neglect, and those so predisposed are unaware of the danger which they run, they must be actively confronted, without waiting for them to seek advice. To track down such individuals on their daily round of business, or study and lead them to the clinic, is a work which is already being performed in certain countries—notably in the United States.

"Encouraged by the Board of Mental Hygiene of New York, social psychiatry has been developed in America with the collaboration of large numbers of specially qualified assistants whose efforts have met with much success."

The article in full appears in the *World's Health* for June, 1922.

EXCERPTS FROM THE UROLOGIC AND CUTANEOUS REVIEW.

When it comes to differential diagnosis few of us carry a sufficiently large stock in trade.

Thinning of the outer thirds of the eyebrows should lead one to suspect hypothyroidism.

Remember that an inflamed umbilicus in the adult may harbor the diphtheria bacillus, or the tetanus bacillus.

Do not be thrown off your guard by the trivialness of prickly heat; find out what is the matter with the patient.

A rare case may bring great profit to your pocketbook, but it should bring still greater profit to your stock of knowledge.

If you send your patients away with instructions written out fully, clearly, briefly, you will buy more bonds next year.

Remember that the over-treatment of syphilis may defeat its very purpose by breaking down tissue resistance and immunity.

Objectionable tattoo marks should be excised, or overlaid with a tattoo pattern that will obscure their objectionable character.

Do not forget that a pyoderma of the feet and legs of children may be kept up by flea bites; inquire as to their house pets.

Itching in the midline of the lumbo-sacral region, in the absence of a skin lesion, should lead one to look for an occult spina bifida.

Efficient therapy of an inflamed lesion of the feet may be frustrated if the patient continues to wear cordovan or other poorly ventilated shoes.

For a very waxy seborrhoea of the scalp nothing is better than the cautious use of powdered white precipitate well rubbed into small areas of the scalp every day.

The Wassermann reaction in unskilled hands, like a rifle in the hands of one who does not know how to use it, may unsuspectingly go off in the wrong direction.

Pellicules of dandruff may adhere to hair shafts so as to closely resemble nits; use a lens, and do not embarrass yourself and the patient by improperly diagnosing pediculosis capitis.

In the presence of a difficultly curable disease, protect yourself by never failing to fully describe to the patient the ultimate evolution of the disease, lest he blame the change to alleged improper medication.

Unless you have more than a casual knowledge of radium therapy, all of your patients requiring radium should be placed under the care of a man possessing special knowledge of this element and its use.

Have your syphilitic patients weigh themselves regularly at least once a month. A loss of weight should immediately arouse suspicion of the possibility of over-treatment with mercury, and points plainly to the need of reconstructive treatment.

Do not dismiss a neurotic or timorous patient with the assurance that a lesion is "just nothing"; anything is always something; if the lesion is really negligible, always explain why; you will thereby give the patient his just due, and also protect your reputation from the charge of carelessness.

RED CROSS NOTES.

THE Red Cross has appropriated \$1,500 from its relief fund for the benefit of victims of the Chicopee disaster. Miss Ellen H. Campbell of the Holyoke Chapter is acting as chairman of the relief committee.

Officials of New York city have expressed appreciation of the service rendered by fourteen Red Cross nurses in caring for victims of the West Twelfth Street fire, July 18. Two persons lost their lives and more than thirty were injured. In addition to nursing service a can-

teen was established for assistance of homeless women and children.

Boston Metropolitan Chapter is giving free instruction in life-saving methods at six beaches.

The National Convention will be held in Washington, D. C., Oct. 9, 10 and 11.

A full-time health unit has been established at Rochester, Ind. The Rockefeller Foundation, the county, the city of Rochester, and the State Board of Health will share with the Red Cross and the Tuberculosis Association in financing the service.

Miss Alice Killelea has been appointed executive secretary of the Fitchburg Chapter.

THE SCARLET FEVER GERM.

R. W. PRYER, D.P.H., Detroit, Mich., in an article published in the *Journal of Laboratory and Clinical Medicine*, states his belief that this disease is caused by a spore-bearing organism which shows several varieties, "one of which is, under certain conditions, somewhat similar in its morphology to B. diphtheria and which may be a toxic producer." If subsequent study justifies this belief, a distinct advance has been made in this field, but the reading of the article leads to the fear that the writer may be over-enthusiastic.

MEDICAL WOMEN'S INTERNATIONAL ASSOCIATION.

THE second meeting of the Medical Women's International Association will be held at Geneva, Switzerland, from the 4th to the 7th of September, 1922. All members or prospective members are urged to be present. Each society of medical women throughout the world is invited to send one eligible delegate, and an additional delegate for every 100 members.

Interesting reports will be read by medical women from different countries, and the constitution of the organization will probably be revised in accordance with the provisions under which it was adopted.

Clinics in the different European cities may be visited en route. The attractions of travel in Europe are great this year. Practically all countries are accessible, and the Passion Play will be on at Oberammergau during the entire summer.

OPENING FOR A PHYSICIAN.—Dr. Walter L. Burrage, Secretary of the Society, reports having received information from a resident of Marshfield that a physician might secure a good practice there. Marshfield is an attractive coast town in Plymouth county, with a large summer population.

AMERICAN RELIEF ADMINISTRATION.

Moscow, July 3 (By mail).—Thirty-three physicians and surgeons, each in charge of one of the Moscow hospitals, have united in signing the following letter of thanks to Dr. W. D. Nickelsen, medical supervisor of the Moscow district for the American Relief Administration:

"At the moment when the Moscow city hospitals were insufficiently supplied with food and other necessities for the care and cure of the sick, the American Relief Administration came of its own accord to the assistance of those hospitals, supplying them regularly with medicines, instruments, things needed for the care and treatment of the patients, linen, blankets, gowns, and also took upon itself the supplementary feeding of the patients.

"This assistance has greatly improved the condition of the patients and has also helped to check disease in general.

"Being aware of the great good done by the humanitarian activities of the American Relief Administration, the chief physicians of the Moscow hospitals are conveying to that organization in the person of the chief of the Moscow section their sincere appreciation for its present activities and its readiness to continue that work in the future."

AWARD OF THE CHARLES G. MICKLE FELLOWSHIP.

This fellowship, under the control of the faculty of medicine of the University of Toronto, represents the income from a \$25,000 endowment by the late Dr. W. J. Mickle. The fellowship is awarded to physicians anywhere who have made distinct contributions to practical knowledge of medicine.

The award has been made to Dr. Harvey Cushing, professor of surgery at the Harvard Medical School and chief of the surgical service of the Peter Bent Brigham Hospital. Dr. Cushing has accepted the award but has requested the faculty of the University of Toronto to send one of its young graduates to work with him. He will transfer the money to this person.

Dr. Cushing, after graduation from the Harvard Medical School, was surgical house officer in the Massachusetts General Hospital. Later he went to Johns Hopkins, serving as professor of surgery for nine years, and after that time returned to Boston.

Dr. Cushing was elected president of the College of Surgeons at the last annual meeting and is an honorary fellow of the Royal College of Surgeons of England and Ireland. He served as director of Base Hospital 5, attached to the British army from May, 1917, to May, 1919.

The bestowal of this award is a recognition of

the position held by Dr. Cushing in the surgical world as well as of his service in the World War.

FRAMINGHAM MONOGRAPH No. 9.—This last of a medical series issued by the Framingham Community Health and Tuberculosis Demonstration deals with the Framingham epidemic and presents post-epidemic observations and will be reviewed later. This valuable contribution to the literature devoted to the problems of influenza may be procured by applying to the Community Health Station. The price is five cents a copy.

RECENT DEATHS

DR. GEORGE EDGAR LOTHROP, long identified with the theatrical profession, formerly a practising physician in Boston, died at the Massachusetts General Hospital, August 3, 1922, at the age of seventy-one. He was born in Providence, R. I., November 17, 1850, was left an orphan at the age of ten, supported himself by selling papers and finally worked his way through Dartmouth Medical School, taking his degree there in 1871. After some fifteen years of practice, Dr. Lothrop devoted himself to theatrical management, opening the Boylston Museum and later the Grand Museum. For thirty-five years he had been manager of the Howard Athenaeum. Among his memberships were the Elks, Masons and the Odd Fellows. In recent years he had lived in Brookline. He is survived by his widow and one son.

DR. PETER WHITE COOY, of Lawrence, a fellow of the Massachusetts Medical Society, died at his home, July 15, 1922, aged 64, from the effects of a fall.

He was a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1882, and joined the State Medical Society in 1916.

The profession will feel profound sympathy for Dr. Joel E. Goldthwait in the loss of his son, Vincent Bowditch Goldthwait, by accidental drowning, August 9, 1922.

REPRINTS.

A few reprints of *The Treatment of Diabetes Mellitus*, by Elliott P. Joslin (BOS. MED. AND SURG. JOURN., June 22, 1922), are available and may be procured by applying at this office. Price 50c.

BOSTON MED. AND SURG. JOURNAL.
125 MASS. AVE., BOSTON.

REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH
WEEK ENDING JULY 29, 1922

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis	8	Pneumonia, lobar	22
Chicken-pox	14	Scarlet fever	49
Diphtheria	72	Septic sore throat	2
Dog-bite requiring anti-rabic treatment	8	Syphilis	32
Epidemic cerebrospinal meningitis	5	Suppurative conjunctivitis	2
German measles	5	Trachoma	3
Gonorrhea	94	Tuberculosis, pulmonary	138
Measles	144	Tuberculosis, other forms	13
Mumps	38	Typhoid	20
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The Boston Medical and Surgical Journal

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Original Articles.

ROENTGEN RAY AND TUBERCULOSIS IN INFANTS AND CHILDREN.

A SUMMARY OF SEVENTY-EIGHT CASES.

By FREDERICK W. O'BRIEN, A.B., M.D., BOSTON.

Assistant Professor, Tufts College Medical School;
Consulting Roentgenologist, Boston Consumptives'
Hospital.

and

FORREST B. AMES, A.B., M.D., BOSTON.

Assistant Roentgenologist, Boston Consumptives'
Hospital.

It is an obvious fact that in all scientific investigations proceeding over a period of years the pendulum of inquiry swings gradually across the entire field and now one phase of the subject and then another becomes the centre for more detailed consideration.

No exception to this appears in the study of tuberculosis. Not so long ago the adult was the one on whom attention was bestowed. Of late, however, interest is changing, and present day ideas may be summed up in the words of Griffin, who says: "If, therefore, tuberculosis practically always starts in childhood, as we must admit it does by the evidence given us by competent observers, the way to eradicate it is not by sanatorium care of adults, but by preventive care in childhood."

Preventive care of any individual must of necessity rest on methods of procedure which will indicate that such care is necessary in a given case.

Methods of procedure for the diagnosis of tuberculosis in infancy and childhood are well established and widely used. These methods consist of a careful history, an equally thorough physical examination, roentgenograms and laboratory tests. He is the best diagnostician who will rely on no one finding, save positive sputum, but will correlate all methods to form a correct diagnosis.

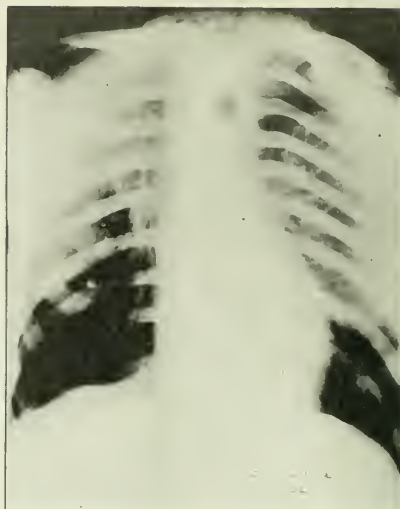
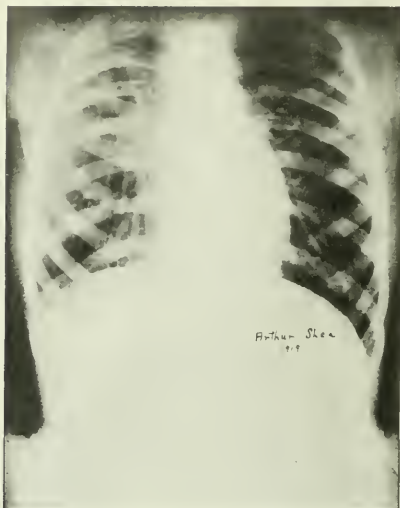
Apparently, however, even with all these careful methods of precision in diagnosis, a more nearly correct estimate of the clinical types of tuberculosis in childhood has not been made until within the past year.

Early in 1921 the present writers offered a statistical study of forty-four infants and children at the Boston Consumptives' Hospital. The purpose of this study was to correlate roentgen ray findings with clinical tests and clinical manifestations of tuberculosis as they appeared in infancy and childhood.

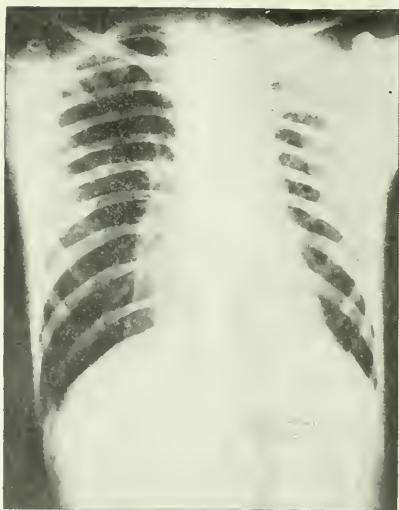
Summarizing these cases, we concluded:

"1. (a) The Von Pirquet and intracutaneous skin reactions are reliable guides to infection with tubercle bacilli, and the number of positive reactions increases from infancy up through childhood, over ten years of age, all patients reacting. (b) In twenty-six of thirty-six positive skin reactions the roentgen ray disclosed the site of infection to be intrathoracic.

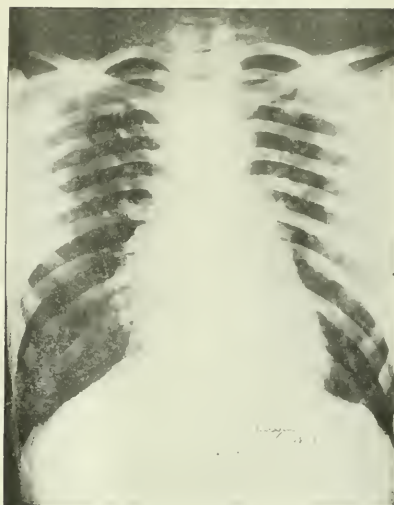
"2. D'Espine's sign, as a clinical index of tuberculosis of the bronchial lymph nodes, is of relatively little value, being elicited only eleven



Case 1. Boy, now 14 years of age. Excellent clinical condition. Positive sputum. Steadily progressive lung pathology similar to adult type.



Case 2. Boy, now 10 years of age. Clinically positive for the past four years. Positive sputum. Marked progression of lesions during past year, with extreme prostration of patient with typical adult symptoms.



Case 3. Boy, now 12 years old. Negative from standpoint of symptomatology and physical examination. Discharged from hospital. Serial plates show thickening of hilus shadow and some progression toward periphery.



Case 4. Boy, now 10 years of age. Clinically negative. Serial roentgenograms show clearing in right base and calcification in right hilus region.



Case 5. Boy, now 10 years of age. Serial study shows apparent partial clearing of pulmonary lesions and development of cardiac involvement.

times, as against roentgen ray evidence of glandular enlargement in twenty-eight cases.

"3. Three cases of positive sputum were found in fourteen diagnoses of chronic pulmonary tuberculosis.

"4. Fourteen cases of chronic pulmonary tuberculosis of the adult type were found. This suggests that the so-called 'phthisis' is more common in childhood than has been stated by writers of textbooks.

"5. Fifteen cases, negative clinically, showed definite roentgen ray signs of marked structural changes consistent with tuberculous infection. This raises the question as to whether these children are to be regarded as more likely to develop clinical tuberculosis, and should thus be watched carefully and roentgenographed at fairly frequent intervals."

Feeling that a new line of attack on the questions concerning tuberculosis in children has been opened by these studies, we have continued our investigations and now add thirty-four cases to those previously reported.

In the light of time and other investigations our corroborative finding relative to the value of Von Pirquet and intracutaneous tuberculin tests seems to be amply proved. Therefore, in our new series of cases we have omitted these data.

Also, a further clinical discussion of the D'Espine sign seems unnecessary, accepting the logical conclusion that the roentgen ray is the best diagnostic means to determine the nature and extent of tracheo-bronchial lymph node involvement.

Our chief points for present discussion deal with: (1) The prevalence, in our group of cases of chronic pulmonary tuberculosis in infants and children; (2) a comparative consideration of roentgen ray findings and clinical diagnosis; (3) presentation of a few cases emphasizing the value of serial roentgenography in preventive work among children.

CHRONIC PULMONARY TYPES IN CHILDREN.

With the new interest being given to a study of types and clinical progress of tuberculosis in childhood, we naturally come to the question concerning the prevalence of chronic pulmonary forms. Are these forms more common than we have been led to believe?

This is certainly a fair question, and an important one, for if the child can, and does, have chronic, slowly progressive types of tuberculosis, our needs for prophylactic and sanatorium care of suspected and frank cases are imperative. If we can apply methods of treatment early enough, then, it is logical to assume we can carry more children through a clinically healthy adolescence and, by the effects of early training, insure to them a reasonably long and useful adult life.

One writer, Griffin¹, would estimate 20,000 definitely tuberculous children in the country with a pitifully small number of sanatoria to care for them. Fishberg² says he has seen scarcely twelve cases of chronic pulmonary tuberculosis in several thousand children.

Apparently between these wide extremes there is a conservative middle estimate. Appar-

ently, too, this conservative estimate is much larger than medical men have generally conceived.

Textbooks on diseases occurring in infancy and childhood lay but little emphasis on the incidence of chronic pulmonary tuberculosis. Bone and gland tuberculosis are said to take first place⁴, and the general impression is given that the chronically progressive lung lesions are sufficiently rare to need but little stressing.

Only within a short while have observers begun to assert more often the widespread prevalence of pulmonary types in childhood.

In our previous study we noted fourteen cases of chronic pulmonary tuberculosis in forty-four children under fourteen years of age, seven of these being in the age groups under ten years and two under six years of age.

Bringing this series to date by adding thirty-four cases, we have found six more with chronic pulmonary tuberculosis, three under ten years of age. In addition to these six on whom definite diagnosis was made, three more patients were placed in the questionable class from clinical manifestations.

Three of the above cases were found to have positive sputum. Other diagnoses were made on the basis of positive findings by methods of procedure already mentioned, *i. e.*, clinical history, physical examination and roentgen ray. The roentgen ray was corroborative in all cases and showed characteristic and well defined changes in the lung fields, ranging from hilus and peribronchial thickening to infiltration and consolidation.

In the face of these additional figures we again feel justified in the assumption that chronic pulmonary tuberculosis occurs in children more often than has been stated and sufficiently often to deserve more attention than has heretofore been given to it.

ROENTGEN RAY AND CLINICAL FINDINGS.

In an attempt to emphasize the increasingly practical use of the roentgen ray as a diagnostic aid, we noted in our previous study fifteen cases in which the physical findings were negative, while the roentgenogram showed structural changes within the lung fields consistent with pathology caused by the tubercle bacillus.

With this point we enter a field of controversy, for with the attention of clinicians and roentgenologists newly focused on a correlation of the types of lesions and clinical findings in children, there is some discussion as to what is a real norm with which can be compared roentgenograms of suspected cases.

It is probably true that an absolute norm can be found only with difficulty, if at all, yet with the work at its present status, we feel justified in assuming certain changes in the lung markings as consistent with tuberculosis if like appearing changes, and no others, occur in cases of well proven tuberculous disease in children.

Only by adhering to certain standards of diagnosis can we assume to ourselves an accuracy of reasoning which can be regarded as such until definitely proved fallacious.

Lest this attitude be misunderstood, we reiterate the absolute necessity of correlating clinical and roentgen ray findings, and would, by no means, advocate the making of a positive diagnosis on the basis of the roentgen ray alone, giving the benefit of the doubt to the patient in each case where symptomatology and physical examination are entirely negative.

However, we do feel that differences of opinion can be settled only by constant observations of children who show definite structural lung changes by roentgen ray with and without clinical signs and symptoms.

In our new series we have found eight cases with changes in the lung fields consistent with tuberculosis from the standpoint of roentgen ray, but negative clinically. We believe it is fair to assume that these children do have demonstrable sites of infection with tubercle bacilli, and because of this should be traced along through childhood and roentgenographed at intervals to note progression or retrogression of so-called positive lung markings. This is one method of preventive work under our present day conception of prophylaxis.

SERIAL ROENTGENOGRAPHY.

Following the lines of study just suggested we have endeavored to add new data to cases previously reported.

As already stated in our former series, we found fifteen cases with characteristic lung field markings on the roentgenogram, but clinically negative for tuberculosis.

During the year's interval ten of these children have been discharged from the hospital clinically well. We have endeavored to follow up these ten through the Out-Patient Department. Only five have been found and returned for re-examination. With the five still remaining in the hospital we thus have ten cases in this class of children on whom serial roentgenograms have been made.

Of the ten cases we found that five showed definite changes in the roentgenograms, all of these changes being consistent with progression of the pulmonary lesion. Two of the five showed cardiac shadows pointing toward the presence of heart involvement.

Although the number of cases here reported is small, we feel that the value of their serial study is real and that the prophylactic principle involved should receive more widespread adoption.

The accompanying cuts of serial roentgenograms are of two types of cases: (1) Two clinically positive cases in which very definite progressive pulmonary involvement has taken place over a period of one to three years; and (2) three cases which are regarded as clinically

negative, yet have shown changes in lung markings by roentgen ray. The developed cardiac lesion is well shown in one case.

SUMMARY AND CONCLUSIONS.

We have presented a supplementary group of thirty-four infants and children, studied from the standpoint of correlating roentgen ray and clinical findings. These thirty-four cases are added to forty-four previously reported. From this new group and total of seventy-eight cases we have found the following:

1. A complete total of twenty cases of definite chronic pulmonary tuberculosis in seventy-eight children under fourteen years of age, or twenty-four plus per cent. Ten, or fifty per cent. of these cases were in children under ten years of age.

In spite of the apparent concentration of tuberculous cases at the Boston Consumptives' Hospital we believe this large number of positive findings points to more widespread incidence of pulmonary tuberculosis in children than has yet been sufficiently emphasized.

The roentgen ray was of definite help in determining site, extent and type of lesion in each of the positive cases.

2. Eight patients were examined in whose lung fields the roentgenogram showed typical markings consistent with pathology caused by tubercle bacilli. These cases were negative clinically. Inasmuch as the prophylaxis of tuberculosis is more and more being begun in childhood, the roentgen ray evidence of pulmonary involvement may safely be taken as a warning, and certain positive cases should receive more detailed attention and treated along preventive lines.

3. Ten cases from our old series were re-examined by roentgen ray. These cases were clinically negative, but had shown positive lung field markings in previous roentgenograms.

Five from these ten showed changes consistent with progression of the pulmonary condition; two showed development of cardiac lesions.

From these we conclude that serial roentgenograms should become a routine part of methods of procedure in the diagnosis and preventive treatment of tuberculosis in infants and children.

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INTERSTITIAL PREGNANCY, WITH REPORT OF A CASE OPERATED BEFORE RUPTURE.

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GESTATION within the cornual portion of the tube was first recognized as a pathological entity about two centuries ago. All reported cases up to 1893 were observed upon the autopsy table. If the diagnoses were made or suspected before or after rupture in the early days of surgery, no mention of this fact has been found in the literature by the writer. After rupture, the sudden alarming symptoms of shock and hemorrhage which intervened were treated expectantly with the result of 100 per cent. mortality.

The year 1893 marks a new era in the treatment of this condition, when Traub¹ operated on a case after rupture. A supravaginal hysterectomy was done with recovery.

Few surgical lesions of the genital tract in women are of rarer occurrence. The first case observed by an American author was reported by Fitz² in 1875, who found 18 cases in the literature up to that time. Ten years later Simon³ stated that he could find but nine cases of true interstitial pregnancy in the literature, and nine doubtful.

In 1896 Rosenthal⁴ studied 1324 ectopic pregnancies of all types and found 40 of them to be undoubted interstitials, an occurrence of 3 per cent. Werth⁵ and Weinbrenner⁶, who studied this subject at about the same time, questioned the high percentage of cases found by Rosenthal.

The most exhaustive study of interstitial pregnancy to date was made by Waegeli⁷ in 1914. After a careful study of records and available specimens, he could accept but 53 of the 150 cases he found reported. He reported two cases, making a total of 55 cases up to that time. Up to the time his article was written (1914), there were but 11 reported cases operated upon before rupture occurred.

Of 304 ectopic pregnancies treated at Johns Hopkins Hospital, and reported by Wynne⁸ in 1918, there were but two accepted by the pathologists as true cornual, seven tenths per cent. He reported a total of 1547 ectopic pregnancies of all types, of which number there were 18 interstitials, an occurrence of 1.16 per cent. From 1914 to the present time reports of 26 cases have been found in the literature by the writer, making a total, with the cases accepted by Waegeli, of 79 cases. About 20 of these came to operation before rupture.

To be classified as true interstitial pregnancy, the gestation sac must lie within the wall of the uterine cornu between the proximal end of the isthmic portion of the tube and its uterine orifice. The old definition, that the sac shall lie within the lumen of the tube, is too dogmatic. The tubal mucosa in the vicinity of the sac has been observed in but very rare instances in these cases.

In the normal uterus the interstitial portion of the tube is about 1 cm. long by 1 to 1.5 mm. in diameter. It forms an arc, convex upward and forward. The folds of mucosa within this portion of the tube are fewer in number and not as deep as those found in the isthmic portion. In occasional cases crypts and rudimentary canals have been found opening into the lumen. The epithelial lining does not differ from that found in the isthmic portion of the tube. It is cylindrical with vibrating cilia.

Many theories have been advanced as a cause of this interesting condition. They can well be classed under two heads: (1) Anatomical, and (2) Pathological. Of the anatomical causes, a rudimentary canal of Gärtner as suggested by Pfaff,⁹ or of Wolff, mentioned by Leopold,¹⁰ deserve consideration. Frankl's¹¹ statement, that diverticulæ as a cause are of utmost importance, may, with further study, receive more general acceptance. Congenital atresia may be a causative factor, especially in cases where the passage of the ovum to the interstitial portion of the tube has been delayed by adhesions, inflammations, etc., permitting abnormal development.

Breschet¹² advanced the theory that the uterine ostium of the tube became closed by inflammation during the passage of the ovum through the tube. The ovum then penetrates into the wall of the uterus through a vein of the tube.

Hennig¹³ described a sphincter muscle about the uterine orifice of the tube. In cases where the ovum was delayed in its passage through the tube, contractions of the sphincter closed the orifice of the tube, leaving the ovum in the interstitial portion. Inflammatory processes, although rare in this situation, may well result in atresias, angulations, etc., which impede the passage of the ovum. Development of the ovum would finally result in its arrest in the interstitial portion of the tube.

Microscopic study of specimens of interstitial pregnancy, with a view to ascertaining the cause, has excited little interest in the past among students of this subject. We must admit, as did Velpeau in 1831, that the cause is still unknown.

Morbid anatomy and clinical symptoms of the disease are dependent to a great extent upon the site of lodgment and direction of growth of the ovum. Hypertrophy and hyperplasia of the parenchyma of the uterus about the gestation sac, coincident with the development of the sac, are the factors which determine the gross appearance of the fundus as well as the abnormal relationship of the appendages.

If the ovum lodges near the uterine ostium of the tube, development of the sac does not result in marked asymmetry of the fundus during the early weeks. In cases where the sac is situated near the periphery of the uterus, marked asymmetry of the fundus is an early symptom. Growth of the sac undoubtedly occurs in the direction of least resistance; the thickness of the uterine wall over the sac deter-

mines the direction in which growth will take place.

In the former group of cases with implantation near the uterine cavity, development is toward the cavity. It is believed by many writers that a certain percentage of these cases rupture into the uterine cavity, and are followed by a typical abortion. A few cases have been reported where, on doing a curettage for abortion, the curette has entered a cavity in a cornu of the uterus. It is thought by some that in a few cases following rupture the placenta becomes reimplanted in the uterine cavity, and pregnancy continues to term. In recent years a few cases have been reported of the development of the sac on the anterior or posterior side of the uterus near the center of the fundus. Of especial interest are a case of this type reported by Pfaff after rupture, and one by Curtis¹⁴ before rupture. These cases would seem to confirm the theory of the ovum lodging in some diverticulum of the tube and coming to rest deep in the wall of the fundus.

In the latter group of cases, where the ovum lodges near the periphery of the uterus, development of the sac is outward and upward. Asymmetry of the fundus is an early recognizable sign, usually about the fourth to sixth week of development when the sac has attained about the size of a tangerine orange. In many cases the sign of Ruge-Simon is present: the fundus is vertical from the normal cornu upward to the gravid one, and the round ligament and tube on the gravid side are attached laterally. Rupture is practically without exception through the serosa into the general peritoneal cavity with the attendant symptoms of shock and hemorrhage of the most alarming degree. On account of the increased blood supply in the wall of the uterus, rupture of an interstitial pregnancy produces profound symptoms of shock and hemorrhage in many instances much more rapidly than rupture of a pregnancy in the isthmic portion of the tube.

The classification of interstitial pregnancy has been thoroughly discussed by Weinbrenner, Kohlmann, Lequeux and Waegeli. It is a subject of more academic importance than of especial clinical value. The latter author's proposed classification is the result of a study of a great many records and museum specimens, and is based upon the site of implantation and direction of growth of the ovum:

1. Interstitial intramural or paratubal.
 - (a) Evolution against the uterine serosa.
 - (b) Evolution against the uterine cavity.
 - (c) Evolution in both directions.
2. Canalicular interstitial pregnancy.
 - (a) With outward growth and rupture into the abdomen.
 - (b) With growth toward the uterine cavity and rupture into it.
 - (c) With symmetrical growth in both directions and a possible rupture into either cavity.

Interstitial pregnancy occurs more frequently in multipara than in primipara. In 39 cases studied by Waegeli, 32 were reported to be multipara. Owing to the fact that the uterine wall is capable of greater distention than the isthmic portion of the tube, rupture occurs in a majority of cases later than in tubal pregnancy, usually about the third to sixth month. External signs, as pigmentation, enlargement of the breast, etc., are therefore frequently found. Amenorrhea is of frequent occurrence, but in a majority of cases lasts only 3 to 4 weeks, and is followed by irregular flow simulating an abortion. Lower abdominal pain on the gravid side is common. Malaise, nausea, and vertigo are frequently symptoms of impending rupture.

Siefert¹⁵ stated that no interstitial pregnancy was seen after the sixth month. This has since been disproved by a case reported by Kupferberg¹⁶ at eight months, and one by Glaesmer¹⁷ at seven months. Waegeli asserts that some patients have been known to go to term. Here again it may be stated that the amount of development before rupture occurs depends upon the site of implantation, the direction of growth of the sac and the amount of hypertrophy and elasticity of the uterine wall.

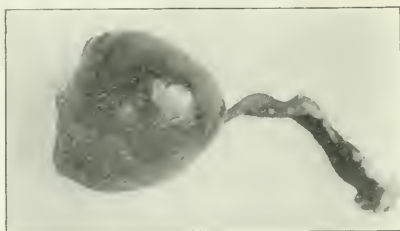


FIG. 1.—Left cornu and tube. The tumor was very tense and wall extremely thin on anterior surface.

On examination an elongated, softened cervix is first noted, then a tumor on the gravid side. In my case, to be reported, my first thought was a fibroid. The tumor extends up vertically, giving one the impression that the fundus is turned one quarter way around toward the normal side, and a straight line is formed upward from the normal tube to the peak of the tumor. In such cases the round ligament is attached laterally to the tumor, sign of Ruge-Simon, the condition found at operation in my case. Judging from reported cases, this observation is rarely made before operation. Virchow stated that the round ligament was always outside the gestation sac. As his observations were made at the autopsy table, we may infer that they were cases of longer term than many early cases of recent report. In these early cases, where a small tumor is encountered, the relations of the round ligament, adnexa and fundus are little changed.

The tumor may be painless, but is frequently tender to touch; no pedicle or line of demarcation

between it and the fundus can be felt. It is usually firm and tense, but in late cases fluctuation may be felt.

After rupture has occurred, it is rarely possible to palpate a tumor on account of the signs of acute peritoneal irritation. In a few cases a haematoma has formed following the initial symptoms of rupture, which have suggested the diagnosis. In most, the immediate symptoms of intraperitoneal hemorrhage dominate the picture and diagnosis of ruptured tubal pregnancy is made.

While a diagnosis of ectopic pregnancy is frequently made, with the inconclusive symptoms presented, it is hardly to be wondered at that a positive diagnosis before operation is extremely rare, if it has ever been made, and that operation before rupture is of very uncommon occurrence.

Few recent writers have made an extensive study of the pathology of interstitial pregnancy. Of those who have been interested in this phase of the subject, Waegeli's description may be accepted as the most authoritative.



FIG. 2.—Tumor bisected, with foetus and placenta in upper half.

Where a communication is found between the sac and the uterine cavity, it is invariably due to a tear in the muscular septum between the two and not the result of dilatation of the uterine orifice of the tube. In a study of 25 cases, the muscular septum between the sac and uterine cavity varied from 3 mm. to 2 cm. in thickness. There were but 10 cases up to 1914 in which a communication was found between the sac and uterine cavity, according to Waegeli. I have found none reported since.

The interstitial portion of the tube external to the fetal sac is frequently seen, but the part between the sac and uterine cavity is rarely observed. Strobaek¹⁸ reported a case in which both the proximal and distal portions of the tube were visible, and Waegeli was able to trace the tube in one of his cases throughout its entire course. It passed around one side of the sac but did not enter it. The latter case illustrates the view expressed by Frankl, that the ovum lodges in a diverticulum outside the lumen of the tube. Kuhne,¹⁹ Aschoff,²⁰ and

others believe that in most cases the fecundated ovum lodges outside the lumen of the tube.

Mortality statistics of interstitial pregnancy are to a great extent dependent upon the time elapsing between rupture and operation. Patients operated upon before rupture may be disregarded, as no deaths have been reported as yet in these cases. Expectant treatment, which was universally practiced up to 1893, resulted in 100 per cent. mortality. In most cases death resulted within the first twenty-four hours from hemorrhage and shock; rarely the patient survived the initial symptoms, and died of infection several days later.

In a series of 29 cases of operation following rupture, reported by Waegeli in 1914, there were 21 recoveries, a mortality of 27 per cent. Wynne in 1918 reported 82 operated cases with a mortality of 11.9 per cent. He does not state whether rupture had occurred in all before operation. The reports in recent years show a decreasing mortality, which is apparently due to earlier recognition of symptoms of rupture, with earlier institution of surgical measures and more efficient methods of treating hemorrhage and shock.

The treatment of interstitial pregnancy is immediately surgical, when the diagnosis is made or suspected. In most cases the presenting symptoms are those of rupture of a viscus with sudden, profuse intraperitoneal hemorrhage. A positive diagnosis has rarely been made before operation. Since surgical treatment was instituted for these cases, there have been no adherents of expectant methods as is the case in ruptured tubal pregnancy.

Transfusion during operation or immediately after in critical cases, next to arrest of the hemorrhage, is the greatest aid.

The type of operation must depend upon the individual case. The vaginal route, either by dilatation and curettage of the sac, or hysterectomy should be rejected in all cases. Curettage is a dangerous and unsurgical procedure and has been reported in but two instances. Frankl attempted this method through a diagnostic error, and followed it with a vaginal hysterectomy. Farrar²¹ opened the abdomen and found an unruptured interstitial pregnancy and then curetted from below with a hand on the sac to prevent rupture. Vaginal hysterectomy is time-consuming and in many cases a needless sacrifice. Neither method has found favor in the treatment of any type of interstitial pregnancy.

Engstrom,²² in 1896, and Lawson Tait,²³ in 1893, each reported a case treated before rupture by incision of the sac, evacuating the contents and closure. Two other cases treated by this method were reported by Wynne.

The method of choice is excision of the sac and tube on the gravid side and closure of the uterine wound. In all unruptured cases, except those operated late in pregnancy, this treatment may be adopted. Also in ruptured cases when

there is not great loss of blood or destruction of uterine tissue, excision is to be preferred.

If the patient's condition is grave as a result of shock and hemorrhage, or the uterus is crippled by the rupture, supravaginal hysterectomy is the method of choice. Bleeding can be controlled more quickly than by excision and it is attended with little shock.

Infected cases, where the patient's condition permits, should be treated by pan-hysterectomy.

In a series of 66 cases studied by Wynne, hysterectomy, either total or subtotal, was practiced in 21 cases, and in the remaining 45 excision of the sac, with or without removal of the tube and ovary on the gravid side, was done.

Of 33 cases reported by Waegeli, total hysterectomy was done in 10, supravaginal in six, and excision of the gravid horn and adnexa in 17.

CASE.—Mrs. O'H., age 27. Referred by Dr. John A. Pettey of Brockton, February 11, 1920. F. H. Married five years. Husband living and well. One child living and well, no other pregnancy. P. H. Usual children's diseases. Pneumonia twice during childhood. Peritonissillar abscess eight years ago, no other illnesses. Catamenia regular and normal until recently. Bowels normal. Never jaundiced. No urinary symptoms. P. I. For the past several months catamenia has been very profuse every other month. No dysmenorrhea. September, 1919, catamenia was excessive in amount but not prolonged. The October period was normal. In November a profuse flow began about the 28th and continued a few days in December. Flowed again about Jan. 2, 1920, very profusely and continued five days, then ceased for five days. Since that time, Jan. 12, she has flowed almost constantly, but has had no profuse flow. Walking or turning quickly in bed has caused a sharp pain in the left side of the abdomen low down. No discomfort on sitting. Considerable frequency of urination since Jan. 1; no dysuria. Bowels normal. No nausea or vomiting. She was examined by Dr. Pettey about Jan. 1, who found the uterus freely movable. Vaginal examination yesterday, Feb. 10, 1920, by Dr. Pettey, who found a mass on the left side of the uterus. He was positive this had formed since the date of last examination, Jan. 1. A tentative diagnosis of ectopic pregnancy was made by him on referring the case to me. P. E.—Well developed and nourished. Skin good color. Pupils equal and react normally. Teeth—upper false, lower in good condition. Throat normal. Heart and lungs normal. Blood pressure 130. Pulse 80. Temperature normal. Abdomen level, tympanitic throughout, no masses or tenderness except in the left lower quadrant, just above the symphysis, where a very tender mass about the size of half an egg can be felt. Vaginal examination: slight laceration of perineum and bilateral laceration of cervix. Cervix is soft and patulous. Uterus moderately enlarged, fundus tipped toward the right and extending upward

from the left side of the fundus is a firm, tender mass, about the size of a tangerine orange. This mass is definitely connected with the fundus, no line of demarcation between it and the fundus made out. Tubes and ovaries apparently normal. Diagnosis: The firm consistency of the mass, with the fact that it was definitely connected with fundus misled me into making a first diagnosis of fibroid. Irregular menstruation and pain, together with the fact that no mass was palpable on examination six weeks ago pointed toward pregnancy. As the mass seemed to be definitely a part of the uterus, a second diagnosis of interstitial pregnancy was made.

Feb. 16, 1920. Operation at the Moore Hospital. Ether, Dr. Petey; Asst., Dr. J. J. Condrick. Trendelenberg position. A five-inch median suprapubic incision. Fundus moderately enlarged, tipped far over to the right. In the left cornu of the uterus is a dark purplish, cystic mass about the size of a tangerine orange, extending upward, slightly to the left. The peak of the tumor extends up somewhat above the attachment of the left tube. Both tubes and ovaries normal. The encroachment of the tumor upon the fundus seemed to involve only the left cornu. A conservative operation was therefore decided upon. The tumor was removed by a wedge-shaped incision in the body of the uterus, the left tube being included. The uterine cavity was not opened during the operation. Incision in the uterus was closed with double No. 2 iodized gut and broad ligament sutured with continuous suture. Abdomen closed in the usual way. Convalescence was uneventful and the patient was discharged March 2, 1920.

On account of the rarity of an unruptured interstitial pregnancy, the specimen was taken to a pathologist for detailed study. It was mislaid and several months later found in such a poor state of preservation that it was of no value. A photograph was taken of the tumor on the day of operation, however, which shows a true interstitial pregnancy.

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UNRECOGNIZED FRACTURE OF SPINE.

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IN palpable fractures of the spine it has always been recognized that there existed a certain percentage of cases in which cord symptoms were absent or only temporary. There is in addition even a greater percentage of cases in which there is no diagnosis of fracture made at the time of injury or shortly subsequent. This class of case has been attracting an increasing amount of attention in recent years; increasing in direct proportion to the increase of power in x-ray machines and the more frequent use of those adventitious aids eliminating factors of error. It has been termed "Kuenmel's disease," since in 1895 Kuenmel reported five such cases, endeavoring to correlate and picture the symptoms in such a way as to facilitate diagnosis. This seems a futile effort, since the character of the lesion, its location, which must consider mobility, and the amount of muscle pull, the amount of weight-carrying function; the presence or absence of nerve-root pressure: in fact those factors which enter into the final picture must, *per se*, have so great a variation that no formula can encompass them.

The diagnosis rests on the history of indirect or direct trauma to the spine, associated with any symptom or symptoms of sufficient importance or duration to warrant an x-ray investigation, which should include a lateral as well as a stereo, and which should be of sufficient clearness to enable one to see the bodies of the vertebrae distinctly, for much of the error that has crept into these cases has been the result of guessing.

A peculiar feature of the symptomatology, as pointed out by Sever, is that symptoms may not appear for a period of several months or even years. This naturally is dependent on the extent of injury and the location and function of the vertebrae affected, as well as the vocation of the patient. It has seemed to the writer that fractures in the lower thoracic region are more likely to produce early symptoms and a greater disability, since the thoracic vertebrae, in addition to their weight-bearing function, being the point of rest from which the muscular action of the whole shoulder girdle arises, are subject to a leverage in direct proportion to the amount of that muscular effort, and as a consequence symptoms arise much more quickly than even in the lumbar region, where the muscular pull is less and the increased size of the vertebrae offset the added weight-carrying function.

The pathology in those cases of considerable duration is distinctive—a disappearance of the body of the vertebra along with the contiguous inter-vertebral discs and possibly the articular surfaces of the two adjacent vertebrae. Naturally this process is more marked on the front of the vertebrae because of the greater resistance of the denser bone constituting the neural-arch,

which, with its ligaments and tendinous attachments, has less pathologic motion than the body. This process has been termed "spondylarthrititis" by Kuemmel, "spondylo-malacia" by Schede; but it is probably caused by the absorption of bone due to the increased mobility of that particular segment by reason of the fracture, with the associated attrition arising from the inclusion of the products of osteo-blastic activity within the joint surface itself.

It is bromidic to state that the treatment varies according to the location, character and severity of the original injury. Many cases have had no treatment whatever and are recognized only accidentally after the lapse of years. With other cases simple retention and rest in bed is sufficient. Others require the extended use of jackets and plaster casts over a considerable period of time. In other cases open operation—preferably autogenous bone transplant—is indicated. In selecting treatment one must consider, first, the amount of time which the patient may have to devote to his treatment, into which question enter the consideration of his vocation, his financial status, his number of dependents and the probable length of time of his future activity; second, the certainty or uncertainty of cure by conservative measures.

The autogenous bone splint is particularly indicated in those cases of lower thoracic or lumbar injury where the financial status of the patient precludes his devoting the long period of time necessary under conservative treatment, since his recovery is rapid, is certain, the result is permanent and there is no greater loss of mobility than by conservative methods. Also such procedure is indicated in all cases in which conservative methods do not yield relief from pain and discomfort, or where there is any progress of the lesion under rest in bed.

Case 1.—Male, 52 years old. Complains that he could not rotate his head. This has been so since his earliest recollection, but of late motion has been attended by some pain. Examination shows that he is able to rotate his head to the left only five degrees, while the rotation to the right is approximately fifteen degrees. Motion of the head on the axis is unrestricted. He denied injury but recollected that he had been told by his parents that when three years old he had fallen down a steep bank, striking his forehead on a rock at the bottom, from which he was confined to bed for some time. He has no recollection of the injury. The x-ray (Figure 1) is difficult of interpretation. It can be safely asserted that the seventh vertebra was not fractured, that the involvement of the sixth probably came as a later result of the original injury. What happened to the others is problematical. There probably was a fracture of the fourth, fifth, second, and possibly the third, but without dislocation. The body of the fifth seems to have disappeared. Nature has compensated this abnormal mobility by an extraordinary down-



FIG. 1.



FIG. 2.

ward growth of the spines of the second, third, fourth and fifth, which, overlapping, give a measure of stability. There was no involvement of any of the nerve segments and the patient was totally unconscious of his having so serious a lesion, since never having known any other condition the lack of mobility was to him normal.

Case 2.—Railroad fireman, 32 years old, 5 feet 11 inches tall, weighs 180 pounds, good physical condition and well muscled. In December, 1915, through some negligence the air was not coupled up as his train entered the east portal of the tunnel through the Cascade Mountains, which is about two miles long with a 2 per cent. grade sloping toward the west. The engine alone was unable to hold the train, which emerged from the tunnel at an estimated speed of seventy miles an hour. The fireman, at his first opportunity, jumped, rolled down the embankment, plunging into a deep pool of water, and received only a Pott's fracture of the right leg. He consulted me some three months later. Examination disclosed the fact that his right hand grip was not equal to his left; that the spine of the first dorsal vertebra was apparently out of line about one-half inch. His right arm was otherwise practically negative and his disability so slight that it had not interfered in any way with his normal range of activity. X-ray disclosed the fact that he had a vertical fracture through the middle of the body of the fourth cervical vertebra, passing down to the right side of the fifth and out through the transverse process of the sixth cervical vertebra.

These two cases illustrate the fact that the injury may be very serious with little or no disability. The first patient, having never known any condition other than that of restricted mobility, was not conscious that this was abnormal. The second patient, as the result of a severe trauma, had received a very dangerous cervical fracture which he might have noticed had it not been associated with a fracture of his right leg, but there was not sufficient disability to draw it to his attention until it was discovered by the x-ray.

Case 3.—Male, 22 years old, average muscular development. Was unloading cordwood from a cart; his horses became frightened and he was thrown to the ground, striking his back against a block of wood. Although suffering considerably, he was able to walk a mile to his home. I saw him two years later, in 1916. He stated that during this time he had suffered much, particularly in getting into and out of bed—a process usually occupying about ten minutes. He first had to roll over on his stomach, raise himself on his hands and knees, progress sideways to the edge of the bed, get one foot on the floor, then the other, and push himself into an erect position, which process was reversed on retiring. He complained that his back was stiff, that he had constant pain at about the site of

the injury, that he could not move quickly. Examination disclosed slight kyphosis over the third lumbar vertebra, accompanied by spasm of the spinous muscles. All motion was restricted and associated with pain. X-ray disclosed a fracture of the third lumbar vertebra, the body being reduced to about one-third of its usual size, with a disappearance of the intervertebral discs and the articular surface of the two contiguous vertebrae. An autogenous bone split operation after the manner of Albee was done; patient was in bed six weeks and was discharged cured. He has worked hard since without discomfort.

Case 4.—Male, 28 years old, lineman. Was removing the wires from a telephone pole, which broke at the base and fell while he was still on it. He apparently landed on his feet, and the pole, striking him on the right shoulder, fell across his right shoulder girdle, but, being held by two wires still attached, it squeezed him without fracturing any of the bones. I saw him within an hour. He had an abrasion over his right scapula about three by four inches; he complained of some pain about the lower part of his back, but palpation showed no abnormality; knee jerks were accentuated. An x-ray was ordered to discover a fracture, if present, but was reported as negative. At his request his family physician cared for him and I did not see him again until October 29, when he came in for examination and permission to return to work. At this time there was a marked kyphosis at the level of his eleventh dorsal vertebra. He stated that he tired easily and on tiring pain appeared at this point. He had a slight Babinski in his right foot, decreased right patella reflex, exaggerated left patella reflex. There was no appreciable or constant loss of sensation to heat or cold. X-ray shows fracture of the eleventh dorsal vertebra, beginning about the middle of the base, extending upward and emerging at the base of the transverse process, with slight outward displacement of this fragment. There is considerable callus formation surrounding this. Lateral view shows characteristic lesion—a wearing away of the inferior surface, more marked anteriorly. He refused treatment and left the city shortly after.

Case 5.—Examination March 14, 1922. Male, 32 years old, painter. In April, 1921, fell about eighteen feet, striking on his back. He was moderately shaken up by the fall, but was able to return to work, and had worked steadily since, but states that when he leans over for a considerable period of time he has a sharp pain in the middle of his back. This was first noticed in September and has increased steadily. Examination discloses very little limitation of motion, but on full forward bending there is some tenderness along the middle of the thoracic vertebrae. X-ray shows fracture of the eighth thoracic vertebra with attrition of lower articular surface only.

Case 6.—Examination March 13, 1922. Male, 72 years old, tailor. While journeying to Seattle on one of the "mosquito fleet" he stepped out on deck and stood beneath the freight elevator, which, descending suddenly, struck him on the shoulders. On arrival he was sent to the Seattle General Hospital. Examination showed abrasion and redness over both shoulder blades; there was no evidence of trauma elsewhere about the body; his reflexes were normal excepting that he had a suggestion of Babinski in both feet and both knee jerks were exaggerated; there were no areas of sensory interference. On movement he complained of pain at about the middle of his lumbar spine, and an x-ray disclosed a horizontal fracture extending through the body of the third lumbar vertebra. This case, however, because of his age and the added fact that the fracture does not involve either articular surface, is being treated by apparatus and is progressing favorably.

Case 7.—Male, 21 years old. In April, 1921, while in Yokohama, Japan, employed as seaman on one of the Shipping Board steamers, he fell through an open hatch, falling forty feet, striking squarely on his chest. He was removed to a hospital, where he recovered consciousness some hours later. He lost two front teeth and received a fracture of the second metacarpal bone of the right hand. He states that he was unable to turn over, but so far as he can recollect there was no interference with either motion or sensation in his legs. Six days later he was removed to his ship and brought to the Marine Hospital in Puget Sound, where he remained six weeks. He states that after his discharge he was unable to perform any heavy work, that he also tired very easily. He further states that this feeling of weakness has been increasing and that while lying in bed his left leg becomes numb. Examination: There is a moderate deformity of the second metacarpal, right hand, with about three-eighths of an inch shortening; there is some dislocation forward and outward of the inner end of the left clavicle. There is also a diagonal deformity of the sternum from about the third to the fifth rib, running down from left to right. He has a marked backward bowing of the thoracic spine, and on being asked if he has grown shorter in stature, states that he is "shrinking;" measurement shows that he is one and three-quarter inches shorter than at the time of his physical examination in the general draft. There is a palpable deformity at the level of the ninth thoracic vertebra, with seeming backward displacement of this vertebra on the tenth. The x-ray is unusual. It shows a healed fracture of the first left rib, of the left clavicle, of the sternum and the eleventh right rib. It also shows fracture of the fifth, sixth, seventh and ninth thoracic vertebrae, with considerable loss of substance of the bodies, and a fracture of the eighth thoracic vertebra, with some loss of substance on its lower surface.

Case 8.—Male, 32 years old, laborer, of good physique and well muscled. Was clearing "rigging" out of a tree when he slipped and fell twenty feet, striking on his head. He was unconscious for twelve hours or more. On recovering consciousness he suffered from severe headaches for three or four days, which persisted in diminishing degree until disappearance three weeks after the injury. I saw him first on the 25th of March, five weeks after his accident. He complained of stiffness of the upper spine and neck and stated also that in the morning his legs are numb and he has difficulty in moving them, but as the day progresses motion becomes freer. There is no pain on walking. Examination: Pupils are equal and react equally; blood pressure, systolic 122, diastolic 84; pulse rate 70. He holds his head rigidly; there is slight lateral motion, but scarcely any antero-posteriorly. His thoracic spine is held almost as rigidly as his neck, but there is very slight motion. Sensation is interfered with chiefly on the left side from the ninth rib down, there being patchy areas of partial or total anaesthesia on the left abdomen and both legs. Reflexes on the left side are absent in the morning, but are present in slight degree in the late afternoon. The right knee jerk is increased and the right plantar reflex slightly diminished. X-ray examination shows the cervical spine to be normal, but there is some compression of the fifth and sixth thoracic vertebrae, suggestive but not fully diagnostic of fracture. A lateral picture discloses a diagonal fracture of the body of the fifth thoracic vertebra, beginning on the posterior surface at the bottom of the neural-arch, extending along the base of the insertion of the neural-arch into the articular surface above.

Cases 3, 4, 5 and 7 illustrate the point, brought out by Sever, that the lesion untreated is progressive, and that although some time may elapse between the time of injury and the first discomforts arising, yet these tend to increase both in intensity and duration. Case 8 is too recent to warrant any deductions, but it seems undoubted that the same would hold true.

Case 6, a horizontal fracture through the body without involvement of either articular surface and without pressure on the spinal cord, should heal kindly under simple retention apparatus, but the normal process may be delayed because of his age and diminished vitality. From the character of the fracture it is probable that it would take place naturally even without immobilization.

In the treatment of Cases 3, 4, 7 and 8 operative procedure is indicated, partly on the lines laid down in the discussion of treatment. Since these men are all laboring men with dependents, the duration of disability being an essential consideration, but particularly in the eighth case, because of the extent of the lesion as well as the

positive pressure symptoms, which are likely to increase; and in Case 7 because of the progressive deformity arising from the extensive injury.

Medical Progress.

PROGRESS IN TUBERCULOSIS.

By JOHN B. HAWES, 2ND, M.D., BOSTON.

ANYONE at all acquainted with the vast amount of literature which is being written and published every day on the subject of tuberculosis and its various ramifications,—clinical, sociological, administrative, scientific, etc.,—will realize that it is almost an impossible task to condense into a comparatively few words a report of progress which will do real justice to the subject. It is possible in this report, therefore, to comment but briefly on what I consider to be the more important contributions and to refer readers who care to go into more details to proper sources of information. In this particular case the proper source of information, in my opinion, is that admirable journal—*The American Review of Tuberculosis*. The articles published in this monthly journal are of the highest quality while in addition, and of perhaps greater value, are the carefully written reviews of current literature on the entire subject of tuberculosis. Anyone, therefore, desiring information on this general subject should take the volume of the *American Review of Tuberculosis* for the past year, in which he will be sure to find the material which he seeks.

DIAGNOSIS.

I do not know of any particularly striking advance which has been made on the subject of diagnosis of tuberculosis during the past year. The various x-ray enthusiasts seem to be getting less and less radical, and less and less of the opinion that they alone are the proper ones to diagnose this disease in its early stages. The majority of them have finally taken what is the only proper attitude for them to take—that the clinician and the clinical examination of the patient *must* come first, and that the x-ray must be looked upon as an adjuvant, but a most important adjuvant, in diagnosis. As a result of the war, particularly, the French observers have commented on the fact that disease of the nasal passages and accessory sinuses will often cause a secondary infection in the lung which closely resembles tuberculosis.

Webb, G. B., and Gilbert, G. B. (*Journal American Medical Association*, March 12, 1922), in an excellent article, comment on this. They believe that disease of the nose and accessory sinuses is frequently found to be the cause of the development of pulmonary bronchiectasis, often mistaken for tuberculosis, and that cure

of the former will often relieve the latter. An editorial in the *Medical Record*, August 27, 1921, comments interestingly on the work of various French physicians who describe what they call pseudo-tuberculosis, due to disease of the upper air passages.

Spicer, F. W. (*Minnesota Medicine*, December, 1920), discussing the differential diagnosis between chronic gas poisoning and pulmonary tuberculosis, believes that gas poisoning may light up an old tuberculous process even one or two years after the original attack of gassing occurred. While I would not agree with him that the gassing itself, under such circumstances, had reactivated the tuberculosis, I feel that in certain instances the chronic bronchitis, and particularly the nervous exhaustion and general debility, which so frequently have followed gassing, may be and very often are, important factors in the outbreak of previously inactive tuberculous foci.

Mendelson, R. W. (*Mil. Surgeon*, July, 1921), believes that more careful bacteriological examination would reveal many mycotic and spirochetal infections which are now diagnosed clinically and treated as tuberculosis, especially in the Southern states, and when dealing with patients coming from the Philippine Islands. Fail, C. J. C. (*Tubercle*, June, 1921), discusses the general condition of broncho-pulmonary spirochaetosis, which is easily mistaken for tuberculosis.

Sewall, Henry (*The American Review of Tuberculosis*, January, 1921), takes up in a similar vein pulmonary atelectasis as a source of confusion in the diagnosis of tuberculosis. His article is an excellent one and is of distinct practical value. There is a long list of references. Stivelman, B. (*The American Review of Tuberculosis*, January, 1921), in an article based on the study of 1700 consecutive cases, discusses the following as conditions mistaken for pulmonary tuberculosis: chronic bronchitis and emphysema, cardiac conditions, nonspecific diseases of the upper respiratory tract, neurasthenia, chronic interstitial pneumonia, bronchiectasis, chronic nontuberculous lung infections, asthma, gastric ulcer, pulmonary abscess, dysthyroidism.

Cohen, M. Solis (*New York Medical Journal*, January 22, 1921), in a valuable article, calls our attention to various points which are considered to be important in diagnosis chiefly because they have been found to be of value in the past. Among others he mentions that râles alone do not prove that tuberculosis is active. He believes that there are tubercle bacilli carriers as well as typhoid and diphtheria carriers, and that too much evidence is placed upon the signs in the lungs in making a diagnosis. In a similar article (*Boston Medical and Surgical Journal*, December 16, 1920), he takes up the differential diagnosis of tuberculosis and cardiac lesions, cancer, syphilis, hyperthyroidism, and others.

References to the tuberculin reaction in diag-

nosis are conspicuous by their absence. The complement-fixation test has been and will be a distinctly laboratory procedure. In my own experience it is a noteworthy fact that the number of patients coming to me who can send in a detailed chart as to their temperature taken various times during the day is increasing; the number of patients, however, who can present a similar chart with reference to their pulse, which I personally consider to be of greater importance than temperature, is still strikingly small. The diagnosis of tuberculosis is still based on thoroughness and painstaking attention to details, particularly with reference to the human being and not entirely to the lungs.

TREATMENT.

In the treatment of this disease, as in diagnosis, very few striking advances have been made. We are plodding along the same lines as before, rather tending to emphasize rest than exercise, although not carrying rest to the extreme that some of its ardent supporters, notably Pratt and Kinghorn, would have us. Occupational therapy is proving a boon to the tuberculosis sufferer, while postural treatment of various kinds is helping out and replacing artificial pneumothorax. Heliotherapy—sunlight treatment—and treatment with artificial light are coming to be tremendous factors in various non-pulmonary forms of this disease.

Dr. D. A. Stewart of the Ninette Sanatorium, Manitoba, in a privately printed pamphlet, in 1920, discusses the various changes in treatment, and in our attitude toward tuberculosis, which have taken place during the past ten years. Stewart is one of our best writers and students on this subject. His articles are always well worth reading.

Webb, G. B., Forster, A. M., and Gilbert, G. B. (*Journal American Medical Association*, March 26, 1921), discuss the important subject of postural rest for tuberculosis. This includes lying on the affected side during sleep and as much as possible during the daytime, increasing gradually, aiming eventually to reach the time when the patient will spend twenty hours on the affected side. A small pillow placed under the ribs will increase the splinting effect. Sewall, H., and Swezey, S. (*American Review of Tuberculosis*, September, 1921), take up the same subject,—rest of the affected lung by means of adhesive strapping and a webbing belt. These are interesting and important attempts in the right direction.

Rollier, A. (*Tubercle*, March, 1921), the pioneer in heliotherapy, describes his new institution for this method of treatment with comments on the results obtained. Hyde, C. L., and Lo Grasso, H. (*American Review of Tuberculosis*, April, 1921), in an article delightfully illustrated, show the practical results obtained in sunlight treatment at their institution. The most important article of all on heliotherapy is

that of Edgar Mayer (*American Review of Tuberculosis*, April, 1921), who in a lengthy, but most excellent and thorough article, brings up to date the entire subject of sunlight and artificial light therapy, with an elaborate and complete bibliography of some 400 references. He urges great care in the use of sunlight in pulmonary cases and cautions against becoming too enthusiastic because of isolated success, or the reverse because of personal failures. Exposures to sunlight should be accommodated to the patient; no general theory can be followed for all cases. Treatment should be given under the guidance of a physician. In regard to artificial light, he does not feel that there is very much scientific evidence of the benefit to be derived from this source as yet. He believes that eventually the use of artificial light will be by the quartz lamp. Anyone interested in this subject will find every reference in this article.

OCCUPATIONAL THERAPY.

The subject of occupational therapy in tuberculosis is such a large one that little comment of mine is necessary. Anyone interested in this subject I would refer either to the National or to the Massachusetts Association for Occupational Therapy, and to the recently published journal, *The American Review of Occupational Therapy*. Occupational therapy as a means of aiding the physical and mental attitude of the tuberculosis sufferer and as a help to his disease, has come to stay. It is one of the splendid advances which has been brought about by the exigencies of the war. At the present time the number of occupational aides available is not anywhere sufficient, but their number is increasing, and schools for occupational therapy are developing rapidly.

Palmer, G. T., and Hoagland, H. W. (*Journal American Medical Association*, Aug. 13, 1921), discuss the tuberculosis problem which has arisen from the war, and which the federal government is trying to solve.

Hunt, F. H. (*BOSTON MEDICAL AND SURGICAL JOURNAL*, September 16, 1920), describes occupational therapy among consumptives as carried on at the Boston Sanatorium.

TUBERCULOSIS IN CHILDREN.

The subject of tuberculosis as it affects infants and young children is attracting a vast amount of attention. Wollstein, M., and Spence, R. C. (*American Journal Dis. Children*, January, 1921), discuss the subject of tuberculosis in infants and young children, based on 359 cases. C. H. Dunn and S. A. Cohen (*American Journal Dis. Children*, February, 1921) present an analysis of 374 infants in whom a diagnosis of tuberculosis was diagnosed in 12 per cent. of all admissions and confirmed in 9 per cent. Of the 374 cases, the skin tuberculin test was positive in 181; negative in 111. The high percentage of negatives is explained by the frequency of

marked atrophy and anemia. A negative Von Pirquet in no way rules out tuberculosis in an infant under two years of age, while a positive Von Pirquet at this age is sufficient evidence for a positive diagnosis of tuberculosis. They place great reliance on examination by means of x-ray.

Achard, H. J. (*American Review of Tuberculosis*, July, 1921), a tuberculin enthusiast, believes that Nature can be helped in her process of immunization by modern science which, in plain English, means putting those children who have been exposed to tuberculosis and who have a tuberculous infection, through a course of tuberculin therapy.

A. Levinson (*Medical Record*, May 7, 1921) describes his methods in discovering and handling children with tuberculosis, and gives details of a study of 300 children. The article is of distinct, practical value, and carefully summarized.

R. M. Balyeat (*Journal American Medical Association*, April 9, 1921) presents his conclusions in regard to the diagnosis and significance of enlarged glands at the root of the lung. This article, which stresses the value of D'Espine's sign, is of interest in view of the fact that certain signs and symptoms attributed by the author to tuberculosis, and in his opinion indicative of tuberculosis of the bronchial glands, have been proved to be of comparatively little value by the recently published report of the committee on this subject of the National Tuberculosis Association.

R. S. Berghoff (*Annals of Medicine*, July, 1920) discusses the various etiologic factors in tuberculosis. Among others he considers childhood infection by means of milk and other sources, and the effects of measles, whooping-cough and other contagious diseases of childhood, and in adult life, influenza.

Henry D. Chadwick (*American Review of Tuberculosis*, February, 1921) makes a plea for the early, adequate and aggressive treatment of the tuberculous child, and particularly the child exposed to tuberculosis, as a means of reducing the present mortality and incidence of tuberculosis.

The recently published report of the committee appointed by the National Association a year or so ago to report on what constitutes the normal chest of the child, from the clinical and x-ray point of view, is of the greatest value in this connection, and should be read and studied carefully by everyone who attempts to make a diagnosis of tuberculosis of the bronchial glands or of pulmonary tuberculosis in childhood.

PATHOLOGY AND BACTERIOLOGY.

In this connection the subject of reinfection in tuberculosis is an important and much discussed one. E. R. Baldwin and L. U. Gardner (*American Review of Tuberculosis*, August,

1921), in a long and elaborate article, take up this subject, concluding their remarks as follows:

"To sum up our study of this problem, we believe that the lesson to be learned and applied is that, hand in hand with efforts to safeguard the young from infection, more attention should be paid to safeguarding both young and old from disease.

"Without sputum and dairy hygiene the supply of dangerously infected young people will be kept up; without earlier diagnosis, education, and favorable conditions of life for the prospective victims, clinical tuberculosis will continue at an irreducible minimum."

D. A. Stewart (*Nurses' Alumnae Journal*, *Winnipeg General Hospital*, 1920), writing in his usual clear style, discusses the general subject of infection in tuberculosis with practical points concerning the disease. This article is of distinct value not only to nurses but to physicians as well.

J. G. Van Swaluwenburg and G. P. Grabfield (*American Review of Tuberculosis*, June, 1921), in two articles, take up the rôle played by the tonsil in infection in tuberculosis, particularly in regard to apical pleuritis. They believe that a common route of infection to the apices of the lung may lie through the tonsils and cervical lymphatics. While this theory cannot be accepted, at present at least, without further study, it is of distinct interest.

Rhodes, W. L. (*New York Medical Journal*, December 4, 1920), as a result of his work in the army, firmly believes that there is a connection between diseased tonsils and pulmonary tuberculosis, and claims that markedly beneficial results are obtained when tonsillectomy is performed during the initial stages of the disease.

H. L. Barnes (*American Review of Tuberculosis*, October, 1921) analyzes a large number of cases with regard to the transmission of tuberculosis from the tuberculous wife to the husband, or *vice versa*. His conclusions are sound, particularly coming as they do at a time when the majority of observers feel that adult infection, at least among healthy adults, is rare:

1. "The histories of 229 consecutive widowed patients admitted to the Rhode Island State Sanatorium, 1905 to 1921, show that 93, or 40 per cent., lost their consorts by death from tuberculosis, a tuberculosis mortality over three times that of the married people of the community.

2. "Immunity from many diseases is short-lived, and until much more convincing evidence of permanent immunity against tuberculosis conferred by childhood infections is forthcoming, a cautious logic will not accept the confident statements that are being made as to the impossibility or rarity of adult infection."

TUBERCULOSIS AND INFLUENZA.

M. Fishberg (*American Journal Medical Science*, March, 1921), in taking up the much

mooted question of an influenza and a subsequent developing tuberculosis, discusses the various lung and respiratory infections and pathological conditions following influenza. He is still the champion of the comparatively few who believe that influenza had little or no effect in reactivating a tuberculous process in the lungs.

J. B. Hawes, 2nd (BOSTON MEDICAL AND SURGICAL JOURNAL, November 18, 1920), discusses tuberculosis and influenza, based on the experience of Massachusetts State Sanatoria (approximately 2000 cases) during the epidemic. He believes that the treatment of the tuberculous patient with influenza is the same as that of the person without tuberculosis, and that such a case should be regarded as a very serious but by no means a hopeless or fatal complication. Post-influenzal bronchitis and debility are real clinical entities, but in many cases serve merely to disguise a newly awakened tuberculosis. Care, conservatism and common sense are needed more than ever in handling this problem.

J. J. Singer (*American Review of Tuberculosis*, December, 1921) takes up the differential diagnosis between pulmonary tuberculosis and post-influenzal infections. He is of the opinion, and it is undoubtedly a correct one, that many patients are called tuberculous who have really a post-influenzal infection.

Finally, Heise, F. H., in the Thirty-Sixth Annual Medical Report of the Trudeau Sanatorium, 1920, takes up this entire subject, based on reports received from over 2500 discharged patients from the Trudeau Sanatorium with reference to influenza and their tuberculous processes. This is an important and might well be called a final article on this subject.

X-RAY.

It is satisfactory to note that the x-ray man and the clinician are gradually getting the same point of view and coming closer together in their work. The roentgenologist of the present day who believes that the clinician should be thrown into the discard, and that he alone is the proper person to diagnose tuberculosis, is, I am thankful to say, conspicuous by his absence.

F. W. O'Brien (BOSTON MEDICAL AND SURGICAL JOURNAL, December 16, 1920), in discussing the value of the x-ray, claims that in the majority of cases it reveals a more extensive lesion than is found by physical signs, and that it will show glandular changes before evidence of this can be found by percussion and auscultation.

With this I am in hearty accord.

Ornstein, G. G., and Sampson, H. L. (*American Review of Tuberculosis*, December, 1921), discuss the signs of activity of a tuberculous process as indicated by the x-ray. They summarize their findings as follows:

"1. Activity is indicated in the roentgenogram by (1) mottling with decidedly ill-defined margins, blending gradually with the surrounding lung tissue, which appears hazy and

cloudy (non-walled-off tubercles), and (2) the presence of spontaneous and localized pneumothoraces.

"2. The amount of activity is dependent upon the area of surface drained by the circulation (coalesced or disseminated tubercles).

"3. Diminished activity runs parallel to the amount of fibrosis and calcification that has taken place."

Although this report is interesting, I believe that it still remains, and will always remain, for the clinician to decide this important point as to whether or not the disease is active or inactive.

Amberson, J. B., Jr. (*American Review of Tuberculosis*, November, 1921), has given the final word in the etiology of the roentgenographic pleural annular shadows in pulmonary tuberculosis. His views in regard to this much disputed point are now very generally accepted.

NON-PULMONARY TUBERCULOSIS.

The x-ray treatment of tuberculous glands still has some ardent advocates. M. Berry (*British Journal Tuberculosis*, January, 1921) is one of these, and in an interesting article discusses the various methods of treatment, especially that by means of the x-ray. Bogardus, F. B. (*American Journal Ophthalm.*, September, 1920), believes that tuberculosis is the most common cause of recurrent retinal hemorrhage, and gives the details of ocular tuberculin treatment. Stark, H. H. (*Journal American Medical Association*, October 2, 1920) discusses this same subject.

R. H. Miller (article to be published in *Journal American Medical Association* later), in an excellent paper, summarizes the best accepted ideas as to the treatment of tuberculous cervical adenitis. This was read at the last meeting of the American Medical Association. I feel that Dr. Miller's work has covered this ground thoroughly and well.

EDUCATIONAL.

It is a well-known fact that the weakest link in our educational campaign against tuberculosis is that the subject is given either no or scant attention at our best medical schools in this country. Cummins, S. L. (*British Journal Tuberculosis*, July, 1921), discusses this subject in detail; Klotz, W. C. (*American Review of Tuberculosis*, November, 1921), describes how such training is carried on in the University of Virginia in affiliation with the new tuberculosis sanatorium recently established by the State Board of Health. In view of the fact that undergraduate instruction in tuberculosis which even approaches being adequate, in the slightest, is extremely rare in the medical schools of this country, this article is of distinct interest. The same subject is taken up in a pamphlet issued by the Ohio State Sanatorium, Mt. Vernon, Ohio, describing courses in tuberculosis conducted throughout the year for physi-

cians and surgeons by the Ohio State Sanatorium. Krause, A. K. (*American Review of Tuberculosis*, November, 1921), in his usual happy and philosophic vein, takes up this same problem.

It is a curious, and to me a somewhat incomprehensible fact, that while there are special departments for syphilis, tropical diseases, and others, there are almost no special departments of tuberculosis in our medical schools, and remarkably little training in this subject. This is a state of affairs that cannot last much longer. H. Gauvain (*British Journal Tuberculosis*, January, 1921) urges that there be more thorough, systematic and prolonged training of physicians in the prevention of disease, and particularly tuberculosis, in the medical schools. He states that neither in England nor in Ireland is there a single professor of tuberculosis in any teaching school, and only two appointed in the United Kingdom. Few, if any, medical students enter any of the special institutions for tuberculosis, except as patients. The same applies to the United States just as much as it does to England. At the present time, the number of medical schools which give systematic and thorough teaching in tuberculosis, and which offer facilities for the medical student to have anything but fleeting glimpses of the early cases, and which give to their students any knowledge whatsoever of tuberculosis as a social, administrative, state and national problem, are conspicuous by their absence.

The work of the Framingham Demonstration is too well known to require much comment. Armstrong, D. B. (*American Review of Tuberculosis*, February, 1921), in an interesting article, summarizes what has been accomplished and the chief lessons that have been learned as the result of the four years that the Framingham Demonstration has been carried on. The article is well worth reading by all those interested in tuberculosis from the public health and social standpoint. The last paragraph sums the subject up briefly and well:

"In conclusion, there must be emphasized the necessity for recognizing the comprehensive nature of an effective antituberculosis program. It is essential to employ all of the community's resources. Tuberculosis is not merely a medical problem; it is not merely a health problem; it is a social problem, in the broadest sense, requiring a comprehensive community engineering plan, if the possibilities for disease control are to be realized to the full."

R. Bosworth (*American Review of Tuberculosis*, March, 1921) describes what has happened to the patients discharged from the Minnesota County Sanatoria. He believes that institutional care and control of tuberculosis will not be reached until each case is admitted before the sputum becomes positive, and, of more importance, a proper solution is found for the control

and supervision of the positive sputum case after discharge.

Billings, B. W. (*BOSTON MEDICAL AND SURGICAL JOURNAL*, September 16, 1920), who has conducted various detailed tuberculosis surveys, in this article describes the methods which she has used and the value of such surveys.

Wagner, H. S. (*BOSTON MEDICAL AND SURGICAL JOURNAL*, September 16, 1920), reports on the work he has been doing at Barnstable County, Mass., in itinerant consultation service. This method of bringing the doctor, expert in his particular line, to his patient, or to groups of patients, instead of the patient coming to the doctor, is proving to be a real factor in discovering cases of tuberculosis which otherwise would be missed.

MISCELLANEOUS.

Winslow, C.-E. A., and Greenberg, L. (*Journal Industrial Hygiene*, January, 1921), discuss the methods and means of controlling factory dust, the incidence of tuberculosis when under exposure to various varieties of dust and reasons why this incidence and mortality is high in some cases and less in others.

Taylor, H. L. (*American Review of Tuberculosis*, June, 1921), shows as a result of his investigations that tubercle bacilli are transferred to eating utensils and that they are potentially exceedingly dangerous avenues of contagion. He believes that public health officials should enforce the use of steam and hot water in all hotels, restaurants, and soda fountains, otherwise he believes that these public eating and drinking places must, to a certain degree, be responsible for the dissemination of all infectious diseases of the air passages and lungs and of other constitutional and general diseases.

PROGRESS IN UROLOGY.

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AND

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*The Young-Stone Operation for Urthrorrectal Fistula.*¹—Davis emphasizes the importance of suprapubic drainage, closure of the urethral fistula and the bringing together of the fascia and levator fibers in the middle line, thereby forming a barrier between the urethra and rectum. The operation itself is practically the same as the old Whitehead operation for haemorrhoids, that is, a cuff of the rectum is freed and pulled down far enough so that the amputation may be performed above the fistulous opening. He claims that the less extensive procedures are chiefly accountable for the numerous

failures in these cases and also goes on to state that the Young-Stone operation is not to be used in cases of tuberculosis or cancer.

*Focal Infections in Relation to Submucous Ulcer of the Bladder and to Cystitis.*²—Meisser and Bumpus at the Mayo Clinic have worked out very thoroughly and scientifically what seems to be a proof of bacterial specificity in these cases. They have shown that infection of the urinary bladder, which has often been attributed to pyelo-nephritis where no evidence at the time of infection of the kidney or where no perivesical disease was in evidence,—the real cause of the bladder infection did not come from the kidney at all. Under certain conditions the infecting organism may cause a generalized cystitis or the inflammation may become localized in one area of the bladder, causing an ulcer such as Hunner described as a "submucous ulcer." They also claim that the tissues in submucous ulcers indicate a blood-borne infection. By recent experimental investigation they have shown that pyelo-nephritis may often be due to focal infections harboring streptococci which have selective affinity for the urinary tract, and that the colon bacillus, which is commonly found and generally believed to be the cause, is one of secondary importance. They have shown that intravenous injections of colon bacilli seldom result in the production of localized urinary lesions; that after other bacteria have been injected, resulting in lesions of the urinary tract, the colon bacillus is frequently found as a secondary invader.

If the theory that vesical infections are of hematogenous origin is correct, it is natural to attribute the source of infection to oral sepsis. Hunner, in his work on submucous ulcers, has suggested this as the source of infection. They report fifteen cases of submucous ulcers done at the Mayo Clinic in which seven had had tonsillitis, three tonsillectomies, five gripes, three scarlet fevers, and two rheumatisms. Eleven patients showed evidences of periapical infection. All of these infections were associated with streptococci. Certain strains of streptococci seem to have a much greater selective affinity for the urinary tract than others.

*Thomas and Pfahler Describe a Treatment of Carcinoma of the Bladder and Prostate by a Combination of Surgery, Electro-Coagulation, Radium Implantation and Roentgen Ray.*³—Their first procedure consists of the usual routine suprapubic cystotomy and with a good exposure begin the process of electro-coagulation. They use d'Arsonval current because of the great concentration of the current at the bulbous electrode which is introduced into the bladder. There is rapid destruction or coagulation of the tissue to which it is applied. They use a current from 500 to 1,500 milliamperes. The growth in the bladder in this way is carefully destroyed and the coagulation occurs with such rapidity that there is practically no hemor-

rhage, care being used not to scald or macerate the wall of the bladder. The tumor tissue, after it has been thus destroyed, is curetted away. After the bladder has been properly irrigated the radium needles are then implanted. The needles used contain 10 milligrams of radium element each. These needles are left from eight to eighteen hours, depending upon the probable degree of malignancy. The smaller the area of disease and the closer the needles, the shorter the period of time the needles are allowed to remain. The process of sloughing which follows requires from three to four weeks. If the carcinoma involves the prostate gland the radium is used through a suprapubic wound and also by the perineal route after the method described by Herbst. They believe that roentgen-ray cross-fire is of advantage and should precede operative measures and by this treatment destroy outlying carcinomatous foci in the lymphatics. They also believe that it is of distinct advantage in postoperative treatment as well, and that this treatment should cover the entire pelvic area and extend up as far along the line of lymphatics as the condition has traveled.

*A Procedure for the Cure of Prostatic Abscess.*⁴—Barringer reports a cure of fifteen consecutive cases of prostatic abscess by a procedure much simpler than the radical method. With the patient in the lithotomy position and with the gloved index finger of the left hand in the rectum as a guide, he proceeds with local anesthesia and a $3\frac{1}{2}$ inch, 18 gauge needle. Anesthetizing as he goes along, the needle is thrust into the lobe of the prostate where the abscess is localized and with a 5 cc. syringe attached to the needle suction is applied and the pus aspirated, the needle being moved backwards and forwards and also rotated so that all the pus may be aspirated from the cavity. Each lobe of the prostate is punctured, and if there is any question of a supraprostatic abscess or abscesses of the seminal vesicles, these are likewise aspirated at the same time. He advises the use of a needle similar to the lumbar puncture needles. Abscesses of the prostate caused by streptococci, staphylococci, or colon bacilli do not respond well to this type of treatment.

Geraghty, in Volume 7, No. 5, of the *Journal of Urology*, gives a New Method of Perineal Prostatectomy Which Insures More Perfect Functional Results, by avoiding injury to the membranous urethra and external sphincter. With the patient in the usual exaggerated perineal lithotomy position he uses the prostate retractor devised by Freiberg with the symphysis as a fulcrum forcing the prostate forwards towards the perineum. With a semicircular incision the ischiorectal fossae are opened and a bifid retractor introduced and with retraction the central tendon becomes very tense and prominent. This is divided close to the bulb, thus exposing the rectum. Fibers of levator ani are then separated in the mid line in the re-

gion of the apex of the prostate. The anterior fibers pushed laterally while those covering the body of the gland are pushed backwards exposing the glistening visceral layer of Denonvilliers fascia. At no time during this operation is the membranous urethra exposed or is the musculature disturbed. The remainder of the operation is similar in technique to that described by Young and Hinman.^{5,6}

*Treatment of Pyelitis.*⁷—Kretschmer, in his report of 200 cases of pyelitis not of a surgical nature, shows that, by a combination of pelvic lavage, together with a careful study of the case in an endeavor to find out the source of the infection, he has obtained very gratifying results. He uses, as a routine, silver nitrate irrigations and in recurring cases he has shown that the cause of the recurrence is due to the fact that the original source of infection had not been entirely removed or was impossible to be removed.

*The Formation of a Cloaca in the Treatment of Exstrophy of the Bladder.*⁸—There have been seventy-two cases of this type at the Mayo Clinic, thirty-six operated on and twenty-nine successful operations. In the early cases the Maydl and Moynihan operation was employed; an artificial cloaca was formed by making an opening between the bladder and the anterior rectal wall. The most recent cases in this group of thirty-six were operated upon by the Coffey operation of transplanting the ureters into the sigmoid by a two-stage operation and complete cystectomy with closure of the wound by fascia as the third and last stage. He also emphasizes the two dangers in this operation: First, peritonitis on account of the fact that it is an intraperitoneal operation, and, secondly, the danger of ascending pyelitis from the bowel. He states that the best time for operation is between the fifth and tenth year.

*Stenosis at the Internal Meatus after Suprapubic Prostatectomy.*⁹—Fullerton describes the stenosis occasionally resulting at the vesicoprostatic orifice following prostatectomy. Certain of these cases develop within a short period of time after the prostate has been removed; others develop at a much later period, and it is found almost impossible to pass any type of instrument or catheter into the bladder even though the patient seldom complains of difficulty in micturition. In one case it was necessary for the author to do a suprapubic exploration of the bladder in which a tent-like membrane was found almost completely covering the bladder cavity, the bladder outlet having contracted down to a very small opening. To prevent recurrence of this condition the author makes an incision through the vesicoprostatic septum. When this condition is suspected the patient should be treated with urethral dilators for some period of time.

*The Use of Gum-Glucose Solution in Major Urological Surgery.*¹⁰—The authors emphasize

the importance of a decrease in the blood pressure as a sign of beginning shock. In forty of their cases they claim to have maintained the blood pressure by the use of intravenous gum-glucose solution. It was introduced into the vein not faster than 25 c. cm. in five minutes, according to the body weight. This was followed by a maintenance of blood pressure, increased diuresis, increased thirst, the absence of nausea and increased passage of flatus. The solution has no haemolytic or agglutinative action. There were no deaths among the patients who were treated in this manner.

*A New Method of Treating Retention of the Testicle with Short Spermathe Cord.*¹¹—Sievers in this operation believes that in all cases where the testicle cannot be brought down into the fundus of the scrotum without tension on the cord, that the course of the cord should be shortened. He then describes a method of changing the course of the cord by bringing the cord down through the median segment of the obturator foramen. This type of operation removes the cord completely from the inguinal region; and he also suggests that it is a good procedure in those cases of radical operations for inguinal hernia in which, on account of the size of the hernia or recurrence, adequate closure of the abdominal wall is difficult.

*The Transperitoneal Approach to the Kidney, Its Indications and Limitations.*¹²—The author brings out the fact that this method of approach to the kidney, so far as recent text-books on urology are concerned, would lead one to believe that the method is becoming obsolete. He very forcibly emphasizes the value of this means of approach to the kidney and recommends it in renal tumors of considerable size in which the possibilities of infection have been ruled out. It not only makes the approach to the renal vessels much easier, but it also minimizes hemorrhage, which is bound to occur, to a greater or less extent, in tumors approached by the lumbar route.

*Prostatectomy Cases, Postoperative Treatment.*¹³—The author considers postoperative hiccough as a serious condition which should be checked promptly before it reaches the pernicious stage. He believes that pyelo-nephritis is a most probable cause of hiccough and that this produces a reflex or toxæmia, usually without uræmia. His treatment consists of stomach washings with $\frac{1}{2}$ per cent. bicarbonate solution two or three times daily. The administration of 2,000 to 3,000 c. cm. of a $\frac{1}{2}$ of 1 per cent. soda bicarbonate plus 5 per cent. glucose solution during each twenty-four hours, preferably by rectum by the drip method, 5 gr. of chloroform, atropine in 1-100 gr. doses every two hours for four injections, and morphine. He also believes in giving some very drastic purgative prior to the operation. Rosenkrantz also prefers spinal anaesthesia, believing that it lessens the danger of hemorrhage and uræmia. He

states the causes of rise in temperature are due either to constipation, infection in the pre-vesical space, pyelo-nephritis, or a flaring-up of some old focus of infection.

*An Original Method of Observing the Kidney without Pneumoperitoneum.*¹⁴—To increase the visibility of the kidney, which is outside the peritoneal cavity, Carelli produces an artificial emphysema in the surrounding celluloadipose tissues. This is done in the following manner: A roentgenogram having been made with metallic landmarks on the skin, a fine platinum needle from 10 to 12 cm. long is inserted under strict asepsis as far as the transverse process of the second lumbar vertebra. When the process is reached the course of the needle is deviated so as to avoid the process. Oscillation of the manometer of the injecting apparatus indicates when the needle is embedded in the perirenal adipose tissue. The gas to produce the artificial emphysema is then injected in quantities ranging from 200 to 600 c. cm. Carbon dioxide is best for this purpose. Absorption is so rapid that if several roentgenograms are to be made they must be taken as soon as the emphysema is produced and as rapidly as possible. The slight discomfort caused by the gas disappears in less than half an hour.

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Book Reviews.

Blood Transfusions. By GEOFFREY KEYNES.
Oxford Medical Publications. London: Henry Frowde and Hodder & Stoughton. 1922.

Concise, practical monographs on special subjects should always be welcomed by the profession. Until this 158-page publication of Keynes no such monograph has appeared on transfusion, though Bernheim's "Blood Transfusion, Hemorrhage and the Anemias" printed by J. B. Lippincott Co. in 1917, approaches a work of this character. It is in this country that practically all the important advances in the science of blood transfusion have been made, yet it is this English publication that must be looked upon as the best monograph on the subject. Throughout the work the author pleasingly acknowledges the

American contributions and recognizes that it was members of our Medical Corps that gave the British much of their knowledge of transfusion. About 60 per cent. of the well selected references are to communications from the United States.

Keynes gives a connective lucid account of the whole subject and the problems rising from it. It is not an elaborate or very broadly conceived work, but in making any adverse criticisms it is unfair to let them weigh heavily against the value of the book in as much as criticisms largely concern themselves with omissions and discussions of newer views.

History makes all things more interesting and worth while so that the historical sketch of transfusion in the first chapter serves as a stimulus and guide for further study. The second chapter on "Hemorrhage and Shock" is perhaps the best one. The pathologic-physiology of these conditions and their treatment are admirably discussed. In the following chapter appears a presentation of the use of transfusion in blood diseases and toxemias. More information could be profitably added particularly as referable to the proper use and effects of transfusion in pernicious anemia; and the pathologic-physiology of the effect of transfusion on the oxygen capacity of the blood and factors of coagulation. One notes the omission of Y. Henderson's views on carbon monoxide poisoning. There also appears a lack of appreciation of the pathology of the marrow in benzol poisoning and thus the value of repeated transfusion in this condition is lost sight of.

The fourth, fifth and sixth chapters are devoted to "Dangers of Blood Transfusion," "The Physiology and Pathology of the Blood Groups," and "The Choice of Blood Donor." Reactions due to transfused blood usually attributed to the instability of blood when removed from the body are not clearly described or fully discussed. The physiology and pathology of the blood groups are well presented, including some excellent paragraphs on their inheritance. The form of routine test recommended for the determination of the blood group is a good one "admittedly not susceptible of the same finesse" as some others. In view of this fact as well as recognition and emphasis placed upon "the necessity for careful blood grouping in every case before performing transfusion," it is somewhat surprising not to find a more detailed description of tests, including direct tests on the blood of the patient and donor, and the character of reactions between sera and cell suspensions. The last chapter gives complete practical instructions for performing transfusion, especial emphasis being placed on a simple citrate method.

In spite of certain omissions this volume is to be recommended as superior to any other single work on the subject. It is not an exhaustive treatise as desired by those intimately acquainted

with the different aspects of blood transfusion. An expansion of this volume following further experience and mature thought would probably establish the work as one of more permanent value and embrace its usefulness. Its brevity and clarity, however, make it of true worth, especially for those wishing to obtain readily a connected serviceable account of the whole subject.

Applied Chemistry. By FREDUS N. PETERS. Ph.D. St. Louis: C. V. Mosby Co. 1922. Price, \$3.50.

This book is a very well arranged elementary chemistry, covering in a very interesting manner the important facts of inorganic chemistry and some of the more common phenomena of organic chemistry, such as lighting and lubricating fluids, fats and oils, starch, foods and their values, etc. It is written in very concise but readable style. Though intended primarily for a high school text-book, it is excellent for a household reference book of simple chemistry.

Clinical Laboratory Technic for Nurses. By ANNA L. GIBSON, R.N. Revised Edition. Boston: Whitecomb & Barrows. 1923. Price, \$2.00.

This is a much needed book, written by a nurse who has had good training and is actually doing this work. It is an excellent book for those who teach in training schools for nurses; for nurses doing laboratory work in the small hospitals which do not have regular chemists and pathologists; and for the office nurse, as it covers much of the same ground as the more elaborate works on diagnostic technic written for physicians, but in a simplified form that can be followed by one who has not had a medical training. It should be useful also to the practitioner when he wishes only the technic of tests, turning to the larger medical works when necessary for the interpretation of the findings.

The first two chapters describe the care of laboratory apparatus and the microscope, and the preparation of reagents, with many useful tables; a chapter each is devoted to urine, faeces, etc., including one on the preparation of tissue for microscopic study.

Food, Health and Growth. By L. EMMETT HOLT. New York: The Macmillan Co. 273 pages. Price \$1.50.

This book consists of a series of lectures given in California last winter by the author. It takes up the subject of nutrition in childhood from the broadest possible standpoint, and represents a digestion of an enormous amount of material. It is not written as a text or reference book, but is more especially a plea for recognition of the prevalence of malnutrition in children, and

the importance to the race in preventing it. Many statistics are quoted, and a great deal of the material is based on original work that Dr. Holt and his associates have been carrying on for some years.

The author always has written in an exceedingly clear and illuminating style, and this book is interesting from start to finish. The chapter on vitamins is an excellent digest of a difficult subject; that on caloric needs is also very good and points out especially how really little we have known covering the caloric needs of children, and upon what inadequate data much of our supposed knowledge is founded.

The Healthy Baby. (Second Edition Revised.)

By ROGER H. DENNETT. New York: The Macmillan Co. 247 pages. Price \$1.25.

There is no question that the Mother's Manuals are popular and do a great deal of good. Dr. Dennett's is one of the best. The title is, however, somewhat misleading, as he includes a good deal of material relating to older children.

The book is in six sections, as follows:

1. Development and the Bodily Functions.
2. Hygiene and Training.
3. Common Ailments.
4. Care of the Special Organs.
5. Feeding and Diet.
6. Lists and Tables.

In the main, one can agree heartily with most of what Dr. Dennett says. Many pediatricists, however, including the reviewer, would not believe in giving a large baked potato daily to infants of 10 months, as the author recommends. Nor would most authorities believe in giving raw berries at the end of the second year. To the reviewer this seems utterly unsound. Despite one or two statements, such as the foregoing, to which exception might be taken, the book is sound, sensible, comprehensive and readable, and can be heartily recommended to all young mothers.

The book should do a great deal to stimulate physicians to be on the watch for malnutrition in children and to treat it correctly when they see it.

HONORARY DEGREES.

The degree of doctor of laws has been conferred by Lafayette College on Dr. Alfred Stengel, professor of medicine in the University of Pennsylvania.

At the 85th annual commencement exercises of Marietta College, Dr. Charles E. Hamiston of Chicago received the honorary degree of doctor of science in "recognition of his efforts to raise the standard of the medical profession in all parts of the country."—*Science*.

Current Literature Department.

ABSTRACTORS.

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THE SIGNIFICANCE OF THE INFLUENZA BACILLI.

BLOOMFIELD, A. L. (*Johns Hopkins Hospital Bulletin*, May, 1922) discusses two problems in regard to the epidemic of influenza, namely, (1) As to whether the influenza bacillus was the cause of the epidemic, and (2) if not, what relation did it have to the disease and what is its general significance?

He has taken up the following questions:

1. The comparative incidence in the population at large during epidemic, post-epidemic, and later periods.
2. The seasonal variation, if any, through the year in relation to respiratory disease.
3. The relative number of chronic and of temporary carriers.
4. The localization of organisms in carriers in relation to persistence.

The summary of the literature brings out the following points in regard to carriers of influenza bacilli:

(1) Influenza bacilli may be carried for prolonged and indefinite periods of time by individuals affected with chronic respiratory disease—bronchitis, bronchiectasis, lung abscess, etc. In this case the organisms seem to live and multiply in the focus of infection whence they are discharged.

(2) Normal (clinically well) people without any recent history of respiratory disease may harbor influenza bacilli in the throat. While the observations on record are few, it appears that such a carrier state may be brief or prolonged, and that in some cases the same strain of organism may be present for months or a year.

(3) Great variations have followed the experimental introduction of influenza bacilli in man. In some cases the organisms were promptly eliminated, in others a carrier state was set up lasting for weeks or even months. The situation is complicated by the doubtful relation of some of the cases to acute respiratory infection, by the fact that no exact observations were made on the location of the organisms in the upper air passages, and by the fact that in some cases old laboratory strains and in others freshly isolated human strains were used.

The main results of his present work may be briefly summarized as follows:

"In the first place it appears that the general incidence of influenza bacilli in the throats of healthy people has declined greatly since the time of the pandemic, the present figure being comparable to that which existed before the wave of influenza in 1918. Furthermore, there seems to be no striking relationship to the season of the year or to the prevalence of minor respiratory infections. An outstanding feature of the carrier state in the individuals we have observed was its usual relatively brief duration and the absence of evidence in the case of healthy people of localization of influenza bacilli in a localized area of diseased tissue such as the tonsil."

Finally, he concludes that we have in the case of the influenza bacillus group, organisms which show a marked variation at various times in their adaptation to growth on human mucous membranes. A

variety of altered conditions, especially acute infectious diseases, may produce this change but epidemic influenza does so to an extreme degree. [J. B. H.]

ORAL SEPSIS AND SYSTEMIC DISEASE.

WATSON, W. B. (*The Practitioner*, June, 1922) discusses the various conditions which in his opinion may be associated with and indeed are the result of oral sepsis. These conditions include practically all the diseases known to man. He takes them up under the diseases of the cardiovascular system, diseases of the blood and ductless glands, diseases of the digestive, nervous, respiratory and urogenital systems, diseases of the eye and the rheumatic group of diseases. [J. B. H.]

THE RELATION OF NUTRITION TO TOOTH DEVELOPMENT AND TOOTH PRESERVATION.

MCCOLLUM, SIMMONDS and KINNEY (*Johns Hopkins Hospital Bulletin*, June, 1922) presents the first part of an elaborate study of gross maxillary and dental defects in 220 rats on defective and deficient diets. Their conclusions so far are as follows:

The percentage of oral defects was greatest in rats fed the diets deficient in protein, calcium and fat-soluble A. The rats on diets low in calcium exhibited the next highest incidence and those on diets low in both calcium and fat-soluble A had the third percentage of damage.

A deficiency of the anti-scorbutic substance from the diet of man would no doubt be a factor in the production of oral disease but the rat is able to synthesize this substance.

Polynneuritis, xerophthalmia and scurvy are outspoken expressions of deficiency disease, which, in this country, fortunately are rarely encountered.

It is our belief, however, that severe oral disease may result from diets which are only relatively defective, where the disturbance appears to be out of all proportion to the cause.

In these border-line phases, the dietary defect or deficiency is minute and can only be determined by careful scrutiny of the diet and patient, or of the animals over a considerable period.

It is not possible at this time to name any one deficiency which specifically causes dental or oral disease: it would appear that any slight variation in the American diet, which always so dangerously approaches the level of dietary deficiency, might become active at any period of lowered resistance or of physical or nervous stress. [J. B. H.]

STUDIES IN ASYMPTOMATIC NEUROSYPHILIS.

MOORE, J. E. (*Johns Hopkins Hospital Bulletin*, July 1922) in this paper discusses the classification, treatment and prognosis of early asymptomatic neurosyphilis, presenting the following conclusions:

1. It has been shown that early invasion of the central nervous system in syphilis, is common, occurring in 26.4 per cent. of a series of 352 patients with primary and secondary syphilis. Of 94 early neurosyphilides, 72 were asymptomatic, and were detected only by the routine application of spinal puncture.

2. Early asymptomatic neurosyphilis may be divided into three sub-groups on the basis of the spinal fluid findings and the response of the various groups to treatment.

3. Invasion of the central nervous system probably occurs in the majority of all patients with syphilis, and unless the course of the disease is influenced from without (by treatment), this invasion takes place in most instances within the first year after infection. The ability of the invading organisms to produce clinical neurosyphilis probably depends on the defense mechanism of the individual patient. The experimental and clinical evidence bearing on these points are reviewed.

4. Early asymptomatic neurosyphilis is more common in the white race than in negroes, but is equally frequent in men and women, of either or both races.

5. Prolonged regular treatment influences favorably the incidence of early asymptomatic neurosyphilis. Irregular or lapsing treatment, on the other hand, markedly increases its incidence.

6. A study of this material from the standpoint of strains of *Treponema pallidum* furnishes no support to the theory of the existence of a neuroptic strain of organism.

7. That the spinal fluid abnormalities of early asymptomatic neurosyphilis are evidence of actual anatomical damage to the nervous system, is indicated by the frequency of certain minor subjective and objective neurologic signs in this class of patients. An appreciation of these signs, and of the significance of a persistently positive blood Wassermann reaction in treated patients, furnishes a clinical diagnostic aid for the recognition of neurologic invasion.

8. Spinal puncture is an indispensable routine procedure in the management of early syphilis. Unless it is employed, many patients will be discharged as cured who are nevertheless candidates for clinical neurosyphilis. It should be performed as a routine after the first or second course of arsphenamin, and unless a lapse in treatment occurs, need not be repeated (if negative) until the end of treatment and the probation period.

9. All three groups of asymptomatic neurosyphilis may be serologically and clinically "cured" by appropriate methods of treatment.

10. Early asymptomatic neurosyphilis is the forerunner of clinical neurosyphilis. One patient of our second group has developed clinical cerebrospinal syphilis. Of the third group, three patients have developed general paresis and one cerebrospinal syphilis.

11. There is suggested an outline of treatment for early syphilis, the uniform application of which will markedly reduce the incidence of asymptomatic neurosyphilis, and probably, therefore, of clinical neurosyphilis. [J. B. H.]

THE BIOCHEMISTRY OF TUBERCULOSIS.

LONG, E. R. (*Johns Hopkins Hospital Bulletin*, July, 1922) discussing the complex subject of the biochemistry of tuberculosis concludes as a result of his investigations and of others that in progressive tuberculosis the rate of metabolism is increased, as a result of the operation of two factors, hyperthermia and the toxic effect of a foreign protein upon protoplasm. As far as protein destruction is concerned, the second of these seems to be the more important, for hyperthermia *per se* does not increase nitrogen elimination in the normal subject. Yet it may well be that in the increased general metabolism induced directly by fever, the tissues become impoverished in those protein-sparing constituents which serve to prevent protein destruction at similar temperatures in health, and that protein may for this reason be drawn upon to maintain the high level of total energy transformation. [J. B. H.]

THE ETIOLOGY AND TREATMENT OF DIABETES.

RENSHAW and FAIRBROTHER (*British Medical Journal*, April 29, 1922) discuss the significance of a starch splitting and acetone-forming organism found in the stools of diabetic patients, summarizing their results as follows:

1. From the stools of diabetics a new organism (*B. amyloblasticus intestinalis*) has been isolated which splits up starchy foods, forming oxybutyric acid, diacetic acid, butyl alcohol, and acetone. Sugar is also formed during this fermentation.

2. Acetone has been found in quantities capable of estimation in the stools of diabetics.

3. In diabetes carbohydrate fermentation occurs in the alimentary canal, forming abnormal products which probably so affect the glyco-genic function of the liver as to lead to improper storage therein of the glucose from the alimentary canal during digestion.

4. Definite lines of treatment include elimination or suppression of this organism. [J. B. H.]

CALCIUM DEFICIENCIES: THEIR TREATMENT BY PARATHYROID.

GROVE and VINES (*British Medical Journal*, May 20, 1922) discussing the various conditions in which there is a calcium deficiency such as the chronic toxæmia, particularly suppurative conditions, from the clinical observations which they describe, draw the following conclusions:

1. The ionic calcium of the blood becomes deficient in cases where a chronic toxæmia is present. Such deficiency may be regarded as one of the manifestations of the presence of a chronic toxic state, and is an indication that the septic focus should be carefully sought for and treated where possible.

2. Where there are lesions due to such states, healing does not commence until the ionic calcium of the blood approximates to the normal figure.

3. By parathyroid therapy it is possible to rectify the calcium balance of the blood much more effectively than by the injection of calcium salts.

4. The therapeutic use of parathyroid substance in the cases described is essentially physiological. It does not appear to act specifically against any one organism, nor any one toxin. Its action is to place the tissues of the patient under conditions more suitable for the performance of their normal functions, and for combating the effects of toxic processes. [J. B. H.]

DYSPEPSIA AND CONDITIONS UNDERLYING IT.

DAWSON (*British Medical Journal*, June 3, 1922) divides the various forms of dyspepsia into three groups as follows:

1. Pain or discomfort thirty to forty minutes after food with epigastric tenderness. Vomiting, if present, follows the pain and relieves it. Haematemesis is an occasional feature.

2. Pain two to three hours after meals (it may be with tenderness) relieved by food and alkalis—the hyperchlorhydria complex.

3. Distention and flatulence are the dominant features, and the discomforts which go with them. Vomiting and bleeding do not occur. The bowels are liable to act irregularly and incompletely.

He discusses these groups in detail and in a plain and practical manner. His article is of distinct value to the general practitioner. [J. B. H.]

A PULMONARY SIGN IN ACUTE INFECTIONS OF THE BILIARY TRACT.

WILKIE, D. P. D. (*British Medical Journal*, June 10, 1922) believes that in certain acute infections of the biliary tract there are pulmonary signs at the base of the right lung. He believes that in a patient complaining of pain at the right costal margin and round the right side of the chest the discovery of crepitations or even of pleural friction at the right base does not preclude, but may support, the diagnosis of an acute biliary infection and that such pulmonary signs are secondary to the biliary infection, and, far from contraindicating operation, will be effectively treated by dealing surgically with the primary focus of disease. [J. B. H.]

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THE TUFTS COLLEGE MEDICAL SCHOOL.

THE new era now opening in the history of the Tufts College Medical School under the leadership of the newly-elected Dean, Stephen Rushmore, will be of interest to those concerned with medical pedagogy.

This school began its work in the autumn of 1893. The first dean was Albert Nott, M.D., who served two years. He was followed by John L. Hildreth, A.B., M.D., LL.D., who served two years. Next in order was Harold Williams, A.B., M.D., LL.D., who served thirteen years. Dr. Charles F. Painter, A.B., M.D., held the office for eight years, and after his resignation there was an interim during which Dr. Frank G. Wheatley was acting dean until the appointment of Dr. Rushmore. Under the leadership of these men the Medical School grew in influence and was rated by the Council on Medical Education as a Class A school.

The professors and associate professors of the various departments at this time number 43, as follows:

Professors Emeriti — Frederic Melancthon Briggs, A.B., M.D., Surgery; Henry Beekes Chandler, C.M., M.D., Ophthalmology; Elwood Tracy Easton, M.D., Ophthalmology; John Lewis Hildreth, A.B., M.D., LL.D., Clinical Medicine; George Wharton Kean, M.D., Clinical Gynecology; Morton Prince, A.B., M.D., LL.D., Neurology; John Jenks Thomas, A.M., M.D.,

Neurology; George Hamlin Washburn, A.B., M.D., Obstetrics; Harold Williams, A.B., M.D., LL.D., Theory and Practice of Medicine.

Professors—John Lincoln Ames, A.B., M.D., Theory and Practice of Medicine; George Andrew Bates, M.S., D.M.D., Histology; William Elisha Cheney, A.B., M.D., Laryngology; Felix Percy Chillingworth, M.D., Physiology; William Robie Patten Emerson, A.B., M.D., Children's Diseases; Leo Victor Friedman, A.B., M.D., Obstetrics; Allen Greenwood, M.D., Ophthalmology; Frederick William Johnson, A.M., M.D., F.A.C.S., Clinical Gynecology; Frank Howard Lahey, M.D., Clinical Surgery; Edward Binney Lane, A.B., M.D., Mental Diseases; Timothy Leary, A.M., M.D., Pathology, Bacteriology and Medical Jurisprudence; Edward Norton Libby, A.B., M.D., Clinical Medicine; Francis Henry McCradden, B.S., M.D., Applied Therapeutics; Edward Osgood Otis, A.B., M.D., Pulmonary Diseases and Climatology; Charles Fairbanks Painter, A.B., M.D., Orthopedic Surgery; Edward Marwick Plummer, M.D., Otolaryngology; Andrew Howard Ryan, M.D., Physiology; Townsend William Thorndike, M.D., Dermatology; Frederick Wilbur Thyng, A.M., Ph.D., Anatomy; Frank George Wheatley, A.M., M.D., Pharmacology; Charles Melville Whitney, M.D., Genito-Urinary Diseases.

Associate Professors—Elmer Walter Barron, A.B., M.D., Children's Diseases; Arthur Lambert Chute, M.D., Genito-Urinary Surgery; Jesse LeRoy Conel, A.M., Ph.D., Anatomy; Walter Elmore Fernald, M.D., Mental Diseases; Frank Eugene Haskins, Ph.G., M.D., Pharmacology and Toxicology; Arthur Ronald Kimpton, M.D., Surgery; Walter Freeman Nolen, M.D., Anatomy; Thomas James O'Brien, Ph.G., M.D., Clinical Medicine; Henry Joseph Perry, A.B., M.D., Dermatology; Louis Eusebe Phaneuf, Ph.M.D., Ph.C., M.D., F.A.C.S., Clinical Gynecology; Cadis Phipps, A.B., M.D., Clinical Medicine; Stephen Rushmore, A.B., M.D., Gynecology; Frank Percival Williams, M.D., Surgery.

In addition there are over a hundred assistant professors, instructors, teachers and laboratory assistants.

During its existence the Medical School has conferred the degree of Doctor of Medicine on 1764 graduates. There were 441 students in the school last year and about 140 will enter this year.

The Dental School, formerly the Boston Dental College, became a part of Tufts College in 1899. The buildings are two in number, consisting of a main building occupied by the Medical and Dental schools, with seven lecture rooms. There are well-equipped laboratories for general work and instruction and an equal number of private research laboratories.

Although the students have access to the public exercises in the hospitals of Boston and

many secure positions in out-patient and house services, a large hospital directly controlled by this school would add to a great extent to the teaching facilities. The creation of such a hospital or close affiliation with one will come in time.

The graduates of Tufts Medical School have played an important part in the medical history of this section of the country and this institution is bound to meet many of the demands for practitioners of medicine.

The BOSTON MEDICAL AND SURGICAL JOURNAL extends its hearty good wishes to Dean Rushmore and for the future progress of the Tufts College Medical School.

FULL-TIME TEACHERS IN MEDICAL SCHOOLS.

IN an address delivered at the Seventeenth Commencement Exercises of the Woman's Medical College of Philadelphia Professor Florence R. Sabin closed with the following:

"I may say that I do not think that all the problems associated with the practical extension of the full-time scheme to the clinical side have been solved. Adjustments may have to be made, perhaps radical ones, but I profoundly hope that the plan will be given an adequate trial and that it can win the support of those who are teaching in our medical schools, because I believe it of the utmost importance to the community to range the ablest minds in the medical profession on the side of preventive medicine. Besides an occasional school of hygiene and public health we need to have all the leaders of medical education engaged in research to advance medicine. It is my sincere conviction that the opposition to extending the modern standards of professional education to clinical medicine will yield readily to sound constructive leadership on the part of those who desire this reform."

This subject of full-time teachers in medical schools has been under consideration for several years. Prominent practitioners and teachers have discussed the subject from every angle, but without unanimity of opinion. Practically everybody is agreed that the laboratory sciences require full-time teachers, but since medicine is to a considerable extent an art founded on the sciences, one may question whether the clinical teaching may not lose some of its interest if given over to men working full time in hospitals and laboratories. The time may come when Public Health executives may practically eliminate the preventable diseases and the exact sciences may be applied to the cure of a larger number of ills, but at the present time the experience gained from contact with some of the unsolved problems of medicine and the psychic phenomena of diseased persons may equip the teacher for dealing with the student's mind to

some extent not otherwise obtained. The advocates of the full-time teaching service may suggest that men of sufficient ability to warrant selection for such positions have broad minds and warm human instincts and usually understand the difficulties of practice, and hence are fitted to train practitioners, or it may be argued that premedical requirements demand of young persons that degree of moral and intellectual development which is sufficient for the practitioner and will enable him to intelligently use science so far as it may apply and supplement exact knowledge with that personal influence which the art of medicine requires. Leaving these questions out of the argument, one may propound another which may be asked concerning the wishes of the patient as well as his needs. Will the patients feel as well pleased with the ultimate division of medical attendance between two classes, i.e., the purely scientific worker and teacher and the practitioner? And going one step farther, has not the teacher who is also a practitioner, outside of the medical school, often contributed to medicine some things which his colleague, devoted entirely to research teaching and hospital work, has missed?

These are questions worthy of serious consideration and analysis, and will in turn be solved. At present they are debatable.

NEWS ITEMS.

THE MEDICAL PRESS AND CIRCULAR reports the death of Dr. Charles Henry Brooking, who was born April 3, 1822.

PROFESSOR J. J. MACKENZIE, head of the pathological departments of the University of Toronto, died on August 1 at the age of fifty-seven years as a result of infection contracted during his experiment with the pus-forming bacteria.—*Science*, Aug. 11, 1922.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Aug. 12, 1922, the number of deaths reported was 188, against 168 last year, with a rate of 12.83. There were 30 deaths under one year of age, against 31 last year.

The number of cases of principal reportable diseases were: Diphtheria, 42; scarlet fever, 13; measles, 35; whooping cough, 27; typhoid fever, 5; tuberculosis, 52.

Included in the above, were the following cases of non-residents: Diphtheria, 9; scarlet fever, 2; measles, 1; typhoid fever, 1; tuberculosis, 29.

Total deaths from these diseases were: Diphtheria, 3; scarlet fever, 2; whooping cough, 1; tuberculosis, 13.

Included in the above, was the following case of a non-resident: Tuberculosis, 1.

NOTES FROM THE WORCESTER DISTRICT MEDICAL SOCIETY.—Provisional arrangements have

been made for the first meeting of the society, to be held September 13. Dr. George E. Albee of Worcester will read a short paper on "Heart Disease" and will illustrate his paper with lantern slides of electrocardiograms. Dr. S. A. Levine of Peter Bent Brigham Hospital in Boston will open the discussion. The meeting will be held in the rooms of the University Club, on Main Street.

Dr. Perley Comey of Augusta, Ga., formerly a president of the Worcester District Medical Society, has opened an office for the summer in his old home on Lincoln Street, Worcester.

During the war arrangements were made by the Worcester District Medical Society to co-operate with the police in the event of any great catastrophe. The names of members who would respond to call were taken and placed on file at the telephone exchange. Fortunately no occasion to test out these arrangements had arisen until the wreck of the Berkshire Express at Putnam Lane, August 8. At the first it looked as if many people must have been injured, and the emergency call was sent out for physicians. The plan worked out during the war showed its value when between 30 and 40 physicians responded, ready to render aid.

DR. G. W. WILLIAMSON of Grand Forks, S. D., has been visiting the hospitals and other places of interest in and about Boston.

BEVERLY HOSPITAL.—The regular monthly demonstration clinic was held at the Beverly Hospital, Aug. 15, 1922. Doctors were present from Beverly, Danvers, Hamilton, Topsfield, Lynn, Swampscott, Manchester and Beverly Farms. The following cases were shown and discussed: Carcinoma of Right Breast; Epithelioma of Right Submaxillary Gland; Acute Retention of Urine; Acute Appendicitis—General Peritonitis; Chronic Cholecystitis with Stones in Gall-Bladder, Cystic and Common Ducts; Acute Suppurative Cholecystitis—Acute Hemorrhagic Pancreatitis; Chronic Cholecystitis with Stones—Chronic Pancreatitis; Chronic Appendicitis—Chronic Cholecystitis with Stones; X-rays and Specimens.

A. EVERETT AUSTIN, M.D., announces his removal from 144 Commonwealth Avenue to the Professional Building, 270 Commonwealth Avenue (at Gloucester Street, near Massachusetts Station).

Miscellany.

AN IMPRESSIVE STATEMENT.

THE *Buffalo Sanitary Bulletin*, under date of July 31, 1922, announces under the heading "A Cure for Polio" that Dr. Edward C. Rosenow, Professor of Experimental Bacteriology of the

Mayo Foundation, claims that he has proven "the most successful" treatment for acute anterior poliomyelitis. The statement in the *Bulletin* is as follows:

Dr. Rosenow demonstrated that the serum of a horse, which had been immunized with streptococci isolated from the central nervous system of monkeys paralyzed with virus, had the power to neutralize virus *in vitro*, and to prevent poliomyelitis in monkeys following intracerebral inoculation of active virus. Moreover, this serum appeared to have a curative effect in the experimental disease in monkeys after the symptoms had begun.

Opportunities to test this serum were found during the epidemic in Davenport, Iowa, in 1917, and Dubuque, Iowa, in 1918, and have been used since in sporadic cases by physicians in various parts of the United States.

A summary of results showed that of 60 patients in whom this serum treatment was begun early, every one recovered without paralysis; of 61 patients with slight paralysis at the time of serum treatment, all but one recovered without residual paralysis; of 123 patients with advanced paralysis at the time of serum treatment, 18 died; 30 recovered from residual paralysis; 61 made complete recovery; while the results of the remainder are unknown.

Dr. Rosenow states:

"The conclusions that my Immune Horse Serum, prepared by repeated injections of increasing doses of freshly isolated strains of the pleomorphic streptococcus, has curative power in poliomyelitis, especially when given in the early stage of the disease, is warranted. Its general use in the treatment of this dread disease is indicated, and the need for early diagnosis in suspicious cases by spinal puncture is again emphasized."

Our State Department of Health and the New York Department of Health maintain a conservative attitude toward claims of benefits following serum treatment of acute anterior poliomyelitis, and the United States Public Health Service has not licensed the product advocated by Dr. Rosenow. The Massachusetts Department of Health has on file telegrams relating to this subject from the United States Public Health Service and the New York Board of Health, received within a few days. Further developments will be watched with interest.

DR. J. LEO HANSON'S APPLICATION FOR HOSPITAL LICENSE REFUSED.

THE daily papers report that the citizens of West Dennis have declined to issue a permit to Dr. Hanson for the maintenance of a hospital. One paper alleged that the "transplantation of a bull gland" by Dr. Hanson caused the death of a sixteen-year-old boy. There seems to be a strong adverse sentiment toward Dr. Hanson and his methods, for a public meeting was held

and, according to the reporter for the Boston *Post*, 81 voted against Dr. Hanson's plan for a hospital and only seven were in favor. The meeting was attended by so many who took this opportunity to voice protests that it lasted until nearly midnight.

Dr. Hanson is a graduate of the Philadelphia College of Osteopathy and the Middlesex College of Medicine and Surgery located in Cambridge. Gland therapy has not been a distinctive feature of the practice of osteopathy, so that one may infer that either Dr. Hanson is departing from the practice of his first interest or is planning to supplement the methods of the osteopathic practitioner with treatments about which controversy has been spirited.



A NEW STAR IN THE MEDICAL FIRMAMENT.

ACCORDING to the New York *Times* a doctor in Munich by the use of the iriscope has told the medical history of patients to the minutest detail. He claims that the iris records injuries and diseases with unfailing accuracy. No questions are asked during the examination. In given cases the doctor found that the persons under examination had used alcohol or had had various injuries, which were located. In one instance he asserted that the patient had lost a finger. The patient remembered having cut the finger severely in an automobile accident and "what was left of the finger was sewed on and has done well."

The reporter suggests that if one decides to visit the doctor that he had better go alone. The iriscope is no place for company if you have anything which you wish concealed, for "The worst discovery of the century has come."



CONSERVATION OF VISION.

THE Eye Sight Conservation Council of America, as a result of various inquiries and requests, is establishing a special mailing list of those who wish to receive material of service to lecturers and writers on the subject of conservation of vision.

There is need throughout the nation for lecturers who will appear before local organizations and address such organizations as Rotarian and Kiwanis clubs, mothers and parent teachers' associations, chambers of commerce, merchants' associations, schools, colleges, etc., to present the important subject of eye care and the great need of conservation of vision.

Any who are interested in this work should write direct to the Eye Sight Conservation Council, Times Building, New York City, requesting that their name be entered on a special list of those to receive data and material which will be prepared and issued periodically.

RECENTLY ESTABLISHED SCHOOL OF GRADUATE TEACHING OF DISEASES OF THE NERVOUS SYSTEM.

UNDER the title of The Post-Graduate School of Neurology and Psychiatry of the District of Columbia, a school for the graduate teaching of diseases of the nervous system has been recently organized in Washington, and will open formally in October. Dr. Wm. A. White, Superintendent of St. Elizabeth's Hospital, is President of the institution; Dr. Tom A. Williams, Vice-President; Dr. D. Percy Hickling, Dean of the faculty; and Dr. Daniel D. V. Stuart, Jr., Secretary-Treasurer. Two courses of study, elementary and advanced, of six weeks each, are to be offered, together with an elective course in special subjects.



EXCERPTS FROM THE INFORMATION SERVICE OF THE ROCKEFELLER FOUNDATION.

PARTS of the annual report of the General Director of the International Health Board of the Rockefeller Foundation, made public recently in advance of the general distribution of the volume, show that during 1921 the Board shared in the governmental activities for war on preventable disease in sixty-three states and countries throughout the world.

The activities reported include campaigns against yellow fever in Mexico and South America; field experiments and operations in malaria control; world-wide efforts in the relief and control of hookworm disease; the promotion of county health work in the United States; the improvement of public health laboratory service in various countries; the development of schools of hygiene; and fellowships offered by the Board in hygiene and public health.

PROMOTING COUNTY HEALTH WORK.

"For reasons which are well understood, public health effort has been centered mainly on the larger towns and cities. Health protection for the people living in the country districts has been neglected. The tide is turning. The development of county health organization—which is now going forward with considerable momentum in the United States—is providing a service for the smaller towns and rural communities.

"In the Southern States county health administration developed naturally and inevitably from the effort to control hookworm disease. This is a rural disease; its control is a problem in rural sanitation; a serious effort to handle this one problem in rural sanitation called into being county organization. County organization once established, control of hookworm disease became merely an item in a general health

program under state and county administration. The demonstration thus given of the value of the county as a unit in the state scheme stimulated a movement which is becoming general. At the close of the year county programs on a full-time basis were in operation in about 192 counties in the United States."

"The plan of work pursued by the county health department has been evolved from experience, is applicable under a wide variety of conditions and has stood the test of time. Though there are minor differences to meet local conditions, the most important activities, which are more or less common to all the units, group themselves under the following main heads: (1) public health education; (2) sanitation; (3) control of communicable diseases; (4) adult and child hygiene. The demonstrations are so planned as to enable any county to undertake at the start in a small way and with the least expenditure of money, the line or lines of work which for that particular county give promise of yielding the greatest results in lives saved and sickness prevented. Other activities are added and the health department is expanded as the work proves effective and additional funds are provided.

"Public health nurses are being employed in increasing numbers. They furnish a close bond of contact between the health staff and the people. When a case of communicable disease is quarantined they visit the home and give advice as to the methods to be followed in caring for the patient and in preventing the spread of the disease to other members of the family or to the community; when children are found to be suffering from defects they consult with the parents and urge them to have the defects promptly corrected; and they render valuable assistance to the health officer in the organization and conduct of clinics, in securing the co-operation of established welfare agencies, and in carrying out the general program of health education and community development.

"In the development of county health work the Board has been serviceable in providing funds for initial demonstrations. Its contributions have stimulated appropriations by counties and legislatures; and the demonstrations thus supported are creating a sustaining public sentiment. The state and county appropriations usually show wholesome growth from year to year, and are seldom reduced even in the face of the severe economic depression that has necessitated curtailment of many useful forms of service."

EXCERPTS FROM THE BI-WEEKLY SUMMARY NATIONAL HEALTH LEGISLATION AS PUBLISHED BY THE NATIONAL HEALTH COUNCIL.

New Hospitals for Disabled War Veterans.—Director Forbes of the U. S. Veterans' Bureau

has announced that in accordance with the appropriation act providing \$17,500,000 in funds for new hospital sites he has recommended to the President a hospital at St. Cloud, Minn., to cost \$1,000,000, with facilities for between 250 and 350 beds for mental cases. This has received the President's approval. Another recommendation not yet approved is for a hospital at either San Diego or Los Angeles, California.

Assistant Secretary of the Treasury Clifford has announced that the appropriation of \$18,000,000 of last year authorizing hospitals to be constructed under the authority of the Treasury Department has been expended and that a total of 4,051 beds has been supplied by building additions to Government hospitals and by the construction of twelve new institutions. These hospitals include facilities for the care of disabled veterans suffering with tuberculosis and mental diseases, surgical cases and general cases.

Government Reorganization.—During a recent visit by Dr. D. B. Armstrong, executive officer of the National Health Council, with Brig. Gen. C. E. Sawyer, the latter stated that the plans for a Department of Welfare were still under consideration and that the whole Government Reorganization scheme would be taken up after Congress had gotten such items as the Tariff, Bonus, and Ship Subsidy out of the way. It is not deemed likely that the reorganization will be taken up at this session, even if the plan were entirely agreed upon, which is not considered to be the case among observers in Washington.

New Legislation.—B. 1. Amendment to Constitution Empowering Congress to Regulate Child Labor. S. J. Res. 224. Introduced by Senator Townsend, July 14, 1922. Referred to the Committee on the Judiciary. This amendment to the Constitution provides that Congress may regulate the employment and the hours of labor and conditions of employment of persons under eighteen years of age.

THE NEW YORK DAVENPORT BILL.

In introducing this bill, which afterward became a law, State Senator Frederick M. Davenport, one of the proponents of this measure, said:

"This is a bill to establish a division of maternity, infancy and child hygiene in the State Department of Health. It is designed to accomplish under state auspices, state rules, and with state funds everything of value and more which is contemplated in the alternative plan of matelning the funds of the federal government with other funds of the state government under the so-called Sheppard-Towner maternity act of the national Congress.

"The state of New York, if this measure is enacted into law, formally repudiates the growing tendency of the national government to

encroach in a subtle fashion upon the functions and activities of the states. It is not denied that in matters affecting, for example, post roads and interstate commerce, the federal government is within its rights in leading the way toward better policies of national welfare. But this is a boundary which ought not lightly to be passed. And it is very doubtful whether constitutionally it can be passed. A policy which drags the state governments at the chariot wheels of the national government in a constantly increasing number of matching proposals and multiplying functions and expenditure, is fraught with ultimate disaster not only to the states but to the national government itself.

"The most certain way to keep the national government strong and vital is to protect it from too much functioning. One great danger in Washington today is that the national government may cave in under its overwhelming activities. Everything that the states can do for themselves, everything which fosters local self-government, contributes to the normal functioning and power of the national government as much as it does to the preservation of the rights and responsibilities of the states.—Excerpts from *Health Notes*, New York State Department of Health.

FOREIGNERS AS ASSISTANTS IN ITALIAN CLINICS.

ON the initiative of the Italian League for the Protection of National Interests, the Faculty of Medicine of the University of Rome has granted foreign physicians the privilege of entering the Medical and Surgical Clinics of the University of Rome in the capacity of assistants without salary—a measure which has been adopted with marked success by the universities of France.

These Roman Clinics are under the direction of the greatest Italian physicians and surgeons.

The following places are available for the next academic year, which begins in the first week of November:

- 2 places in the Surgical Clinic.
- 2 places in the Medical Clinic.
- 2 places in the Obstetrical Clinic.
- 2 places in the Dermosyphilopathie Clinic.
- 2 places in the Clinic for Mental and Nervous Diseases.

1 place in the Orthopaedic Clinic.

Foreign physicians are admitted also to the numerous finishing courses offered by the Medical Faculty of Rome.

Applications may be addressed to the President of the Faculty of Medicine of the University of Rome, accompanied by a certificate of graduation and favorable recommendation from the president of the applicant's medical school.

Applications with documents will be received also by the Italian League for the Protection of National Interests (Lega Italiana per la

Tutela degli Interessi Nazionali) Roma (8) Corso Umberto Primo No. 101, which will furnish all required information.—Institute of International Education, Stephen P. Duggan, Director.

EXHIBIT SHOWING ADVANCES IN SANITARY SCIENCE.

THE National Committee on Exhibits Showing Advances in Sanitary Science has recently been formed in Washington, D. C., for the purpose of collecting and preparing material for a great popular public health exhibit in the capital. The members of the committee include Surgeon-General H. S. Cumming, United States Public Health Service, chairman; Dr. D. B. Armstrong, National Health Council; Miss Mabel T. Boardman, American Red Cross; Surgeon-General M. W. Ireland, United States Army Medical Corps; Dr. Victor C. Vaughan, National Research Council; Dr. C. D. Waleott, Smithsonian Institution; James A. Tobey, National Health Council, secretary.

Space for the proposed exhibit has been placed at the disposal of the committee by the Smithsonian Institution. This Institution is visited by more than half a million persons annually. Plans are under way to install exhibit material secured from official and voluntary health agencies. The secretary's office is in the national headquarters of the American Red Cross at Washington, D. C.—*Public Health Reports*, U. S. P. H. Service.

SQUILL EFFECTIVE AS A RAT POISON.

MANY observers abroad are of the opinion that fluid extract of squills is a most efficient rat poison. It is claimed that it has thrice the toxic effect of barium carbonate and is relatively harmless to other animals and birds. It is cheap, and, since it creates great thirst, the poisoned rodents die in the open. It is prepared by macerating freshly purchased bulbs of *Urginea maritima* with alcohol 1:5 for six days and then expressed through a cloth. The baits are prepared by soaking small pieces of bread in the fluid extract. Poisoned animals are dead by the second day.—*The Nation's Health*.

ANTISCORBUTIC VITAMIN IN COW'S AND GOAT'S MILK.

C. H. HUNT and A. R. Winter report experiments made upon guinea pigs to determine the relative value of cow's and goat's milk in the production of vitamin C. Ten c.c. of cow's milk, fed daily, did not seem to have the same protective power as an equal amount of goat's milk, but when the amount of cow's milk was increased to 30 c.c. or more daily no difference was noted. This report was published in *Science*, July 28, 1922.

ARTICLES ACCEPTED BY THE COUNCIL
ON PHARMACY AND CHEMISTRY.

During July the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in the New and Non-official Remedies:

The Abbott Laboratories: Neocinchophen-Abbott Tablets, 5 grains; Louis Hoos: Hoos Albumin Milk; Mallinckrodt Chemical Works: Benzyl Benzoate-M.C.W.

LOWER DEATH RATES.

THE Metropolitan Life Insurance Company reports that the death rates among the policyholders for the first half of 1922 show a drop from 10.3 per 100,000 in the first six months of 1921 to 8.1 for the corresponding period this year. The tuberculosis rate was 13 per cent. lower, the diphtheria rate was 23 per cent. lower, and the puerperal septicaemia rate dropped from 10.3 to 8.1. These figures may reflect a more general knowledge of health problems on the part of the people in addition to cooperation of physicians and health officials.

HOOK WORM INFECTION AND HOOK
WORM DISEASE.

DR. J. A. HAYNE of Columbia, S. C., in discussing a paper on health work said: "The person carrying around a few hook worms in the intestinal canal is not particularly annoyed by them, but if he has a great many that are really sapping his vitality then he develops hook worm disease. * * * * In a certain university 70 per cent. of the students were infected with hook worm, yet they went into a football game with no difficulty."

Dr. Hayne has observed hook worm in Panama as well as in South Carolina.

A REMARKABLE MEDICAL MEETING.

DR. GEORGE W. PAYNE, secretary of the Carlisle County Medical Society, Kentucky, reports that the meeting of this society June 6, 1922, was attended by every doctor in the county. Every paper on the program was read and every doctor joined in the discussion.

THE FIFTEENTH ANNUAL CHRISTMAS
SEAL SALE.

THE National Tuberculosis Association has begun its campaign for the next Christmas Seal sale. Five different styles of advertising material, stories and articles on various phases of tuberculosis health problems are described in

the circular which is being sent out by Philip B. Jacobs, the publicity director.

The great outstanding argument of the saving of 100,000 lives each year, with the conservation of a vast amount of productive energy, will be the especial feature of the campaign.

Dr. Lawrason Brown is the president and Dr. Charles J. Hatfield the managing director, and there are about 90 directors, representing all sections of the country.

Obituary.

WILLIAM TURELL LEARNED, M.D.

DR. WILLIAM T. LEARNED, a well-known general practitioner of Fall River, died at his home in that city, Aug. 14, 1922, of angina pectoris, after an illness of two days.

The son of the late Ebenezer T. and Mary White Learned, he was born in Fall River, March 24, 1861. His early education was in the public schools of his native city, then going to Brown University, where he received an A.B. in the class of 1882. Three years later he took his M.D. at the University of Pennsylvania, settled in practice in Fall River, joining the State Medical Society in 1887. In 1889 he married Frances H. Elmer of Bridgeton, N. J., one son, Dr. Elmer T. Learned, practises in Fall River, another son and a daughter live in the same city.

Dr. Learned had been surgeon to the Union Hospital, consulting physician to the City Hospital, senior physician to the Truesdale Hospital; a member of the American Medical Association, the Quequechan and Country Clubs, and at one time active in King Philip lodge of Mosons. In 1907 he was vice-president of the Bristol South District Medical Society and in 1908 its president.

A retiring man, he avoided public office. His ideals were high as regards the practice of his profession, carrying into the sick chamber the best ethical standards. A large circle will mourn his loss.

Correspondence.

ATTITUDE OF THE STATE TOWARD THE
DRUG ADDICT.

Mr. Editor:

I am requested by Dr. Kline to call your attention to editorial on page 751 "The Attitude of the State Toward the Drug Addict" in your journal of June 1, 1922, Vol. 186, No. 22. Enclosed you will find a copy of Chapter 535, Section 1 being marked. This chapter was approved June 13, 1922.

Very truly yours,

RANSOM A. GREENE.

Assistant to the Commissioner, Department of Mental Diseases.

[Chap. 555.]

AN ACT RELATIVE TO CERTAIN PENALTIES FOR THE VIOLATION OF CERTAIN LAWS RELATING TO NARCOTIC DRUGS AND TO COMMITMENTS OF DRUG ADDICTS AND DIPSO-MANIACS.

Be it enacted, etc., as follows:

SECTION 1. Chapter ninety-four of the General Laws is hereby amended by striking out section two hundred and nine and inserting in place thereof the following:—*Section 209.* No person, not being a physician, dentist, nurse or veterinarian registered under the laws of this commonwealth or of the state where he resides, or a registered embalmer, manufacturer or dealer in embalming supplies, wholesale druggist, manufacturing pharmacist, registered pharmacist, manufacturer of surgical instruments, official of any government having possession of the articles hereinafter mentioned by reason of his official duties, nurse acting under the direction of a physician, employee of an incorporated hospital acting under the direction of its superintendent or officer in immediate charge, or a carrier or messenger engaged in the transportation of such articles, shall have in his possession a hypodermic syringe, hypodermic needle, or any instrument adapted for the use of narcotic drugs by subcutaneous injection. No such syringe, needle or instrument shall be delivered or sold to, or exchanged with, any person except a registered pharmacist, physician, dentist, veterinarian, registered embalmer, manufacturer or dealer in embalming supplies, wholesale druggist, manufacturing pharmacist, nurse upon the written order of a physician, or an employee of an incorporated hospital upon the written order of its superintendent or officer in immediate charge. A record shall be kept by the person selling such syringe, needle or instrument, which shall give the date of the sale, the name and address of the purchaser and a description of the instrument. This record shall at all times be open to inspection by the department of public health, the boards of registration in medicine, veterinary medicine, and pharmacy and the board of dental examiners, authorized agents of said department and boards, and police authorities and police officers of towns. Whoever violates any provision of this section shall be punished by a fine of not more than one hundred dollars or by imprisonment in a jail or house of correction for not more than two years, or both.

SECTION 2. Section two hundred and ten of said chapter ninety-four is hereby amended by striking out, in the fifth and sixth lines, the words "a fine of not more than one hundred dollars or by imprisonment for not more than one year", and inserting in place thereof the words:—imprisonment for not less than three months nor more than two years,—so as to read as follows:—*Section 210.* Each building, place or tenement which is resorted to by habitual users of narcotic drugs for the purpose of using such drugs, or which is used for the illegal keeping or sale of the same, shall be deemed a common nuisance. Whoever keeps or maintains such a common nuisance shall be punished by imprisonment for not less than three months nor more than two years.

SECTION 3. Said chapter ninety-four is hereby further amended by striking out section two hundred and twelve and inserting in place thereof the following:—*Section 212.* Whoever has in his possession a narcotic drug with intent unlawfully to sell and deliver or to exchange such drug, or any part thereof, or whoever unlawfully sells, furnishes, gives, delivers or exchanges any narcotic drug in violation of any provision of sections one hundred and ninety-eight to two hundred and thirteen, inclusive, shall be punished by imprisonment in the state prison for not more than five years, or in a jail or house of correction for not less than one year nor more than two and one-half years.

SECTION 4. Section sixty-two of chapter one hundred and twenty-three of the General Laws is hereby amended by striking out, in the second and third lines,

the words "the Norfolk state hospital", and inserting in place thereof the words:—the state farm, or to any other institution under the department of correction that may be designated by the governor,—so as to read as follows:—*Section 62.* Any of the judges named in section fifty, or a judge of the municipal court of the city of Boston, may commit to the state farm, or to any other institution under the department of correction that may be designated by the governor, to the McLean hospital, or to a private licensed institution, by an order of commitment, directed to the trustees, superintendent, or manager thereof, as the case may be made, in accordance with section fifty-one, accompanied by a certificate, in accordance with section fifty-three, by two physicians qualified as therein provided, any male or female person, who is subject to dipsomania or inebriety either in public or private, or who is so addicted to the intemperate use of narcotics or stimulants as to have lost the power of self-control. The judge receiving the application for such commitment shall examine on oath the applicant and all other witnesses, and shall reduce the application to writing and cause it to be subscribed and sworn to by the applicant. He shall cause a summons and copy of the application to be served upon such person in the manner provided by section twenty-five of chapter two hundred and seventy-six. Such person shall be entitled to a hearing unless after receiving said summons he shall in writing waive a hearing, in which case the judge may issue an order for his immediate commitment as aforesaid, without a hearing, if he is of opinion that the person is a proper subject for custody and treatment in the institution to which he is committed. The commitment may be made forthwith, if the examining physicians certify the case to be one of emergency. A person committed as aforesaid may be detained for two years after the date of his commitment, and no longer.

SECTION 5. Said chapter one hundred and twenty-three is hereby further amended by striking out section eighty and inserting in place thereof the following:—*Section 80.* The superintendent or manager of any institution to which commitments may be made under section sixty-two may, when requested by a physician, by a member of the board of health or a police officer of a town, by an agent of the institutions registration department of Boston, by a member of the state police, or by the wife, husband, guardian or, in the case of an unmarried person having no guardian, by the next of kin, receive and care for in such institution, as a patient for a period not exceeding fifteen days, any person needing immediate care and treatment because he has become so addicted to the intemperate use of narcotics or stimulants that he has lost the power of self-control. Such request for the admission of a patient shall be made in writing and filed at the institution at the time of his reception, or within twenty-four hours thereafter, together with a statement, in a form prescribed by the department having supervision of the institution, giving such information as it deems appropriate. The trustees, superintendent or manager of such institutions shall cause to be kept a local record, in such form as the department having supervision of the institution requires of each case treated therein, which shall at all times be open to the inspection of such department and its agents. Such record shall not be a public record, nor shall the same be received as evidence in any legal proceeding. The superintendent or manager of such an institution shall not detain any person received as above for more than fifteen days, unless, before the expiration of that period, such person has been committed under section sixty-two, or has signed a request to remain at said institution under section eighty-six.

SECTION 6. Section eighty-nine of said chapter one hundred and twenty-three is hereby amended by inserting after the word "hospital" in the third line the words:—or of any institution to which commitments may be made under section sixty-two,—by inserting

after the word "department" in the fourth line the words:—having supervision of the institution,—by striking out, in the seventh line, the words "supreme judicial" and inserting in place thereof the word:—superior,—and by inserting after the word "department" in the eighth line the words:—having supervision,—so as to read as follows:—*Section 89.* The superintendent or manager of a private institution described in section three, the superintendent of a state hospital and of the McLean hospital, or of any institution to which commitments may be made under section sixty-two, when authorized thereto by the trustees of such institution, the trustees themselves, the department having supervision of the institution, or, on written application, a judge of probate for the county where the institution is situated, or where the inmate had his residence at the time of his commitment or admission, or a justice of the superior court in any county, after such notice as the said superintendent, manager, trustees, department having supervision, judge or justice, may consider reasonable and proper, may discharge any inmate if it appears upon examination that he will be sufficiently provided for by himself, his guardian, relatives or friends, or that his detention in such institution is no longer necessary for his own welfare or the safety of the public. If the legal or natural guardian of any relative of an inmate opposes such discharge, it shall not be made without written notice having been given to the person opposing such discharge. This section shall not apply to persons committed by a court under any provision of sections one hundred to one hundred and five, inclusive.

Section 7. Chapter one hundred and twenty-three, as amended in section one hundred and thirteen by section one of chapter two hundred and seventy of the acts of nineteen hundred and twenty-one, is hereby further amended by striking out said section one hundred and thirteen and inserting in place thereof the following:—*Section 113.* At any time prior to the final disposition of a case in which the court might commit an offender to the state prison, the reformatory for women, any jail or house of correction, the Massachusetts reformatory, the state farm, the industrial school for boys, the industrial school for girls, the Lyman school, any county training school, or to the custody of the department of public welfare, for any offence not punishable by death or imprisonment for life, a district attorney, probation officer or officer of the department of correction, public welfare or mental diseases may file in court an application for the commitment of the defendant in such a case to a department for defective delinquents established under sections one hundred and seventeen and one hundred and twenty-four, or to a department for the care and treatment of drug addicts, established by the governor and council under authority of said sections. On the filing of such application the court may confine the original case from time to time to await disposition thereof. If, on a hearing thereon, it appears that the defendant, within a period of three years, has been found guilty of an offence for which he might have been committed to any institution above named or to the custody of the department of public welfare, or that he has been adjudged a juvenile delinquent, and that he is mentally defective, or addicted to the intemperate use of stimulants or narcotics, and is not a proper subject for the school for the feeble-minded or for commitment as an insane person, the court may commit him to such department for defective delinquents, or to such a department for the care and treatment of drug addicts, as the case may be, according to his age and sex, as hereinafter provided.

Section 8. Said chapter one hundred and twenty-three is hereby further amended by striking out section one hundred and fourteen and inserting in place thereof the following:—*Section 114.* If an offender while under commitment to any of the institutions named in the preceding section or to the department of public welfare persistently violates the regulations

of the institution or department in whose custody he is, or conducts himself so indecently or immorally, or otherwise so grossly misbehaves as to render himself an unfit subject for retention in said institution or by said department, and it appears that such offender is mentally defective or addicted to the intemperate use of stimulants or narcotics, and is not a proper subject for a school for the feeble-minded, a physician in attendance at any institution named in the preceding section or a physician employed by said department shall make a report thereof to the officer in charge of said institution or to the director of child guardianship, who shall transmit the same to one of the judges mentioned in section fifty. The judge shall make inquiry into the facts and, if satisfied that the offender is mentally defective or so addicted, and not a proper subject for a school for the feeble-minded, shall order his removal to a department for defective delinquents or to a department for the care and treatment of drug addicts, as the case may be, according to his age and sex as hereinafter provided.

Section 9. Said chapter one hundred and twenty-three is hereby further amended by striking out section one hundred and fifteen and inserting in place thereof the following:—*Section 115.* No person shall be committed to a department for defective delinquents or to a department for the care and treatment of drug addicts under either of the two preceding sections unless there has been filed with the judge a certificate by two physicians qualified as provided in section fifty-three that such person is mentally defective or is addicted to the intemperate use of stimulants or narcotics. The fees of the certifying physician shall be of the amount and paid in the manner provided for like service in sections three to one hundred and twelve, inclusive.

Section 10. Said chapter one hundred and twenty-three, as amended in section one hundred and seventeen by section two of chapter two hundred and seventy of the acts of nineteen hundred and twenty-one, is hereby further amended by striking out said section one hundred and seventeen and inserting in place thereof the following:—*Section 117.* At the Massachusetts reformatory, the state farm or such other place or places as may hereafter be approved by the governor and council, there may be maintained departments to be termed departments for defective delinquents, for the custody of persons committed thereto under sections one hundred and thirteen to one hundred and sixteen, inclusive. At any state institution under the supervision of the department of correction, there may be established and maintained, with the approval of the governor and council, departments to be termed departments for drug addicts, for the care and treatment of persons addicted to the intemperate use of stimulants or narcotics and committed thereto under said sections. All men and boys so committed shall be committed to departments for male defective delinquents or for male drug addicts, as the case may be. All women and girls so committed shall be committed to departments for female defective delinquents or for female drug addicts as the case may be. All such persons committed to departments for defective delinquents or for drug addicts at any institution under control of the department of correction shall be and remain in the custody of the said department until discharged as hereinafter provided.

Section 11. Section one hundred and eighteen of said chapter one hundred and twenty-three is hereby amended by inserting after the word "delinquents" in the second line the words:—or drug addicts,—so as to read as follows:—*Section 118.* The board of parole of the department of correction may parole inmates of the departments for defective delinquents or drug addicts on such conditions as it deems best, and may at any time during the parole period recall to the institution any inmate paroled.

Section 12. Section one hundred and nineteen of said chapter one hundred and twenty-three is hereby amended by inserting after the word "delinquents,"

in the second line the words:—or a department for drug addicts,—and by inserting after the word "delinquents," in the twenty-fourth line, the words:—or to a department for drug addicts, as the case may be,—so as to read as follows:—*Section 119.* Any person may apply at any time to the justice of the district court in whose jurisdiction a department for defective delinquents or a department for drug addicts is located, for the discharge of any inmate of said department. A hearing shall thereupon be held, of which notice shall be given to the applicant and to the person in charge of the institution where the inmate is confined. If after the hearing the justice shall find that it is probable that the inmate can be allowed to be at large without serious injury to himself, or damage or injury or annoyance to others, he may order the person having custody of said inmate to parole him. Further action on the application for the inmate's discharge shall be suspended for one year from the date of his parole. If, at any time prior to the expiration of said year, the justice of the court where the application was filed shall be satisfied that the best interests of said inmate, or of the public, require the recall of the inmate from parole, he may authorize the person having custody of the inmate to so recall him. If an application is denied, a new application shall not be made within one year after the date of the order denying the previous application. If at the end of said year the justice shall find that said inmate can be allowed to be permanently at large without serious injury to himself, or damage or injury or annoyance to others, he may order the person having custody of said inmate to discharge him. If a person discharged under this section is found by any court to have committed, after his discharge, any offence against the laws of the commonwealth, said court may commit such person to a department for defective delinquents or to a department for drug addicts, as the case may be, without the certificate of any physician.

Section 123. Section one hundred and twenty-four of said chapter one hundred and twenty-three is hereby amended by adding at the end thereof the words:—or for the care and treatment of drug addicts, as the case may be,—so as to read as follows:—*Section 124.* Sections one hundred and thirteen to one hundred and twenty-four, inclusive, shall take effect as to any of the departments named in section one hundred and seventeen when the same is ready for occupancy. The commissioner of correction shall notify the governor when a department is in a suitable condition to receive inmates; and the governor may then issue his proclamation establishing such department as a place for the custody of defective delinquents or for the care and treatment of drug addicts, as the case may be. [Approved June 13, 1922.]

LIABILITY INSURANCE.

August 9, 1922.

Mr. Editor:

A certain number of inquiries are made in regard to the liability insurance issued by the United States Fidelity and Guarantee Company of Baltimore to those members of the Massachusetts Medical Society who wish to insure under this policy. The policy is numbered PS-D-8136 and is dated Nov. 10, 1921. The premium per member is \$21. The wording of the policy is as follows:

1. The Company does hereby agree to indemnify each Assured named in the representations heretofore and herein called the Assured, against loss from the liability imposed by law upon the Assured for damages suffered by any person or persons in consequence of any malpractice, error, or mistake: (a) of the Assured in the practice of his profession during the term of this policy; (b) of any assistant of the Assured while assisting the Assured in the administration of

medical or surgical treatment during the said term:

2. The company agrees to defend in the name and on behalf of the Assured any suit brought against the Assured to enforce a claim, whether groundless or not, for damages on account of bodily injuries or death suffered or alleged to have been suffered, by any person or persons in consequence of any malpractice, error or mistake; (a) of the Assured in the practice of his profession during the term of this policy; (b) by any assistant of the Assured while assisting the Assured in the administration of medical or surgical treatment during the said term:

Subject to the following conditions:

Condition No. 1: The Company's liability for loss resulting from one claim or suit is limited to FIVE THOUSAND DOLLARS, and, subject to the same limit for each claim or suit, the Company's total liability under this policy is limited to FIFTEEN THOUSAND DOLLARS. The expenses incurred by the Company in defending any suit, including the interest on any verdict or judgment and any costs taxed against the Assured, will be paid by the Company in addition to the limits expressed above.

Condition No. 2: Any person shall be deemed to be assisting the Assured if such person is a physician, surgeon, dentist or nurse, and is temporarily acting as a substitute for the Assured in an emergency when the Assured cannot act, or during a period in which the Assured is not actively engaged in his professional duties, or if such person is actually assisting the Assured (but not necessarily in the Assured's presence), under the Assured's instructions in the administration, by the Assured, of medical or surgical treatment in a case attended by the Assured.

Condition No. 3. This policy does not cover loss from liability for, or any suit based on error, malpractice or mistake, (1) of the Assured while in any degree whatever under the influence of intoxicants, anaesthetics, or narcotics, (2) of the Assured or any assistant of the Assured in connection with the violation of any law or ordinance, but the Company shall not decline to defend any suit brought against the Assured for damages because such suit is based on an allegation of criminal malpractice; provided that the Company shall not be liable for or on account of, the recovery of damages in any suit.

Condition No. 4: In case the Assured receives notice of any malpractice, error or mistake covered hereunder, or any alleged malpractice, error or mistake, the Assured shall give immediate written notice thereof with the fullest information obtainable at the time to the Company at its Home Office in Baltimore, Maryland, or to the Boston Branch Office of the Company. If any claim is made against the Assured on account of any malpractice, error, or mistake covered hereunder or on account of any alleged malpractice, error or mistake, the Assured shall give like notice thereof with full particulars.

Condition No. 5: If thereafter any suit is brought against the Assured to enforce a claim, the Assured shall immediately forward to the Company at its Home Office or to the Boston Branch Office of the Company, every summons or other process as soon as the same shall have been served on him. The Assured shall at all times render to the Company all co-operation and assistance within his power.

Condition No. 6: No claim covered by this policy shall be settled or compromised by the Company without the consent of the individual member against whom claim is brought. If said member is in doubt as to the advisability of compromising such a claim brought against him he shall have that privilege of submitting the matter to a committee of members of this group, one to be selected by himself, one to be selected by the Company and three members to be selected by the group. The facts of the case shall be presented to this committee, whose decision is for

the guidance of the member against whom claim has been brought, it being understood and agreed that his right to make the final decision is not thereby surrendered or relinquished.

Condition No. 7: The defence of any suit under this policy by the Company will be continued until a final decision is rendered in the Assured's favor, or until the case has been appealed to the highest court to which an appeal can be taken or until the suit has been settled with the written consent of the Assured.

Condition No. 8: The Assured shall not voluntarily assume any liability; nor incur any expense without the written consent of the Company previously given; nor, except at his own cost, settle any claim; nor, excepting as provided in Condition 6, interfere in any negotiations or legal proceedings conducted by the Company on account of any claim.

Condition No. 9: If the Assured carries a policy of another insurer, valid and collectible, against a loss covered in this policy, the Assured shall not be entitled to recover from the Company a larger proportion of the entire loss than the proportion between the amount of this policy and the total amount of his valid and collectible policies.

Condition No. 10: The interest of an Assured under this policy shall not be assignable to any other person.

Condition No. 11: The termination of the membership of an Assured in the Massachusetts Medical Society shall immediately cancel this policy so far as it applies to such Assured and the Company will return on demand the unearned premium due on account of such cancellation. The failure of an Assured to pay, on or before the date when the same is due, any premium required to keep his policy in force shall on such date cancel this policy so far as it applies to the Assured.

The insurance of any individual Assured may be cancelled at any time by written notice given by the Company to such Assured, accompanied by check for pro rata unearned premium. Notice of cancellation may be given by the Trustee of the contract on behalf of all the Assured under this policy, in case of a majority of such Assured shall file with the Trustee of such group contract written notice instructing him to take such action and the Company's check for any unearned premium mailed to the Trustee shall be a sufficient tender.

A memorandum showing the date of any cancellation will be issued by the Company and mailed to the address of the Assured to whom it applies, and a duplicate of such memorandum shall be mailed to the Trustee of the contract. The date named in such memorandum shall be the date of cancellation of this policy so far as it applies to such Assured named therein.

Condition No. 12: No erasures or change appearing in this policy as originally printed, and no change or waiver of any of its terms or conditions or statements, whether made before or after the date of this policy, shall be valid unless set forth in an indorsement added hereto and signed by the President, the Vice President, or any one of the Secretaries of the Company. Notice given to or the knowledge of any agent or any other person, whether received or acquired before or after the date of this policy shall not be held to waive any of the terms or conditions of this policy or any of the representations in any application therefor. An Assured, by the acceptance of a certificate of insurance based on this policy, agrees that the terms and conditions of said policy embody all agreements then existing between himself and the Company or any of its agents relating to the insurance described herein.

Condition No. 13: The word Assured as used in Condition 4, 5, 6, 7, 8, and 9, shall be deemed to include the Assured's estate.

Condition No. 14: The date of this policy is November 10th, 1921, but the policy period as to each Assured named in the representations or amendments thereof shall commence on noon of the date set opposite the name of such Assured, and shall continue until the policy is cancelled as to such Assured in accordance with provisions of amended Condition No. 10 of this endorsement.

Condition No. 15: In consideration of the reduced rate at which this policy is issued, it is hereby understood and agreed between the members of the Massachusetts Medical Society insured hereunder and the Company, that, in event of any suit under this policy any of the said members insured shall give, when requested, testimony in court or advice on committee as provided in Condition No. 6 of this policy without demanding or receiving any charge or fee therefor from said Company. But this agreement shall not be construed to exclude the payment of any necessary expense incidental to such testimony, which may be incurred by any member.

The above conditions are all attached to and forming part of policy PS-D-8126, issued by the United States Fidelity and Guaranty Co. to members of the Massachusetts Medical Society of Massachusetts, dated at Boston, Mass., this 10th day of November, 1921.

The above is countersigned by George H. Crosby, the authorized representative of the Company.

The representations which must be made are these:

(1) I am a member of good standing of the Massachusetts Medical Society and licensed to practice medicine in Massachusetts.

(2) I have not in force and I will not enter into any special written contract or agreement guaranteeing the result of any operation or treatment.

(3) Partner's or Assistant's Name.....

(4) I specialize in

(5) I was born.... (day) (mo.) (yr.)

The rates for policies in larger amounts are 5,000-15,000.....\$21; 10,000-30,000.....\$28; 15,000-30,000.....\$31.50.

The original of this policy I hold in my possession.

Yours very truly,

James S. Stone.

BARNSTABLE DISTRICT MEDICAL SOCIETY.

Mr. Editor:

Following is an account of the August meeting of the Barnstable District Medical Society, held at the Barnstable County Infirmary.

A splendid dinner, consisting largely of the products of the Infirmary farm was served under the able management of Mrs. Wagner. The meeting was called to order at two-thirty. Dr. Wagner gave an interesting address on the suppression of tuberculosis in Barnstable County, and the value of co-operation among the fellows. His talk was illustrated by a number of radiographs of cases which were viewed by everyone with great interest.

Dr. Frank Dunbar next addressed the meeting, choosing as his subject, "The Physician and The Laboratory." The need of such an address was clearly felt, and Dr. Dunbar did admirable justice to the subject.

During these speeches Mr. Mecarta, the milk inspector, entertained the ladies with a series of tests which are used to determine the purity of milk.

Dr. Russell B. Sprague closed the program with a talk on Public Health work. This final speech has certainly made for a better understanding of his work and its difficulties by the fellows.

The meeting was closed by a standing vote of thanks to Dr. and Mrs. Wagner for their most kind and hospitable treatment of the guests.

Paul P. Henson, M.D.,

Sec. Barnstable District Medical Society.

THE THERAPEUTIC USE OF BLUE LIGHT.

Mr. Editor:

I wish to call attention to the excellent little article by Dr. Romeo on the use of violet ray in the treatment of variola. While not original with him, it is an excellent addition to the proof we have of the value of the use of blue light in the treatment of certain skin lesions.

The point I wish to make is, however, as to the use of the term "violet ray." The doctor uses it correctly, although he might equally well use the term *blue light*. As used by him, it is the rays which we call blue that produce the effects so gratifying to the patients as recorded by him.

The criticism which I would make, and I would do so *with all the emphasis possible*, is the ridiculous and erroneous custom of calling the use of high frequency by means of a vacuum tube "violet rays." The color of the tube when in use is incidental and not fundamental, and depends upon the degree of vacuum to which the tube is exhausted. A low vacuum produces the violet color. Higher vacuum gives shades of red. And still higher, greens similar to the x-ray tubes.

The term should always be used as Dr. Romeo uses it, and not as a synonym for high frequency.

Very truly,

FRANK E. STOWELL, M.D.,
44 Pearl Street, Worcester, Mass.

MASSACHUSETTS DEPARTMENT OF
PUBLIC HEALTH.

REPORTED WEEK ENDING AUGUST 5, 1922.

Disease	Cases	Disease	Cases
Anterior Poliomyelitis	11	Lobar Pneumonia	22
Chicken-pox	9	Scarlet fever	58
Diphtheria	98	Septic sore throat	5
Dog-bite	4	Syphilis	52
Dysentery	3	Suppurative conjunctivitis	12
German measles	1	Tetanus	1
Gonorrhea	137	Tuberculosis, pulmonary	109
Influenza	3	Tuberculosis, other forms	9
Malaria	1	Typhoid fever	20
Measles	111	Whooping cough	144
Mumps	23	Hookworm	2
Ophthalmia Neonatorum	12		

WEEK ENDING AUGUST 12, 1922.

Disease	Cases	Disease	Cases
Anterior poliomyelitis	12	Cellulitis	1
Chicken-pox	25	Lobar pneumonia	16
Diphtheria	105	Scarlet fever	37
Dog-bite	13	Septic sore throat	—
Epidemic cerebrospinal meningitis	2	Syphilis	25
German measles	4	Suppurative conjunctivitis	6
Gonorrhea	117	Tuberculosis, pulmonary	134
Influenza	1	Tuberculosis, other forms	10
Measles	82	Typhoid fever	31
Mumps	19	Whooping cough	82
Ophthalmia neonatorum	10	Hookworm	24

REPRINTS.

A few reprints of The Treatment of Diabetes Mellitus, by Elliott P. Joslin (Bos. Med. and Surg. Jour., June 22, 1922), are available and may be procured by applying at this office. Price 50c.

BOSTON MED. AND SURG. JOURNAL,
126 Mass. Ave., Boston.

PUBLIC HEALTH LECTURERS FOR THE
YEAR 1922.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past three years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Penteado Bill, M.D., Doctor of Public Health, Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist, Instructor in Bacteriology and Pathology, Tufts College Medical School. "Methods of Technique in Collecting Specimens."

Walter E. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital, Specialty: Specific Diagnosis and Treatment of Pneumonia.

William C. Woodward, M.D., Ex-Health Commissioner, City of Boston.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full time School Health Officer.

Secretaries of District Medical Societies writing to ask for these lecturers will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating unnecessary correspondence. Please address communications to the Secretary of the Committee, Annie Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

[Note: The Committee on Public Health feels that this notice may have escaped attention, for few applications have been received. Each lecturer is an authority and would present his subject in an interesting and instructive manner.]

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

PAPERS AND DISCUSSIONS OF THE SECTION OF MEDICINE.

AT ITS MEETING AT THE HARVARD MEDICAL SCHOOL, BOSTON.

June 13, 1922.

CHRONIC SEPSIS IN PREGNANCY.

By JOHN E. TALBOT, M.D., WORCESTER.

THE problem of chronic sepsis as an etiological factor in the diseases of the human system is so large that it would be impossible to present it as a single clinical unit. There is in obstetrics, however, an opportunity to study its workings to better advantage because of a less diversified set of manifestations. It is the purpose of this paper to call attention to the presence of a large clinical entity in obstetrics which has chronic sepsis as its initial lesion.

Many cases in obstetrics manifest a persistence of pathology in each successive pregnancy. The woman who has repeated uninduced miscarriages, "the habit of abortion," as it is called, is a well recognized unit. Some cases, however, show a great variety of pathological events.

This persistence of pathology strongly indicates the presence of some continuous etiological factor in the case.

The problem, therefore, becomes one of finding a continuous etiological factor and working out the process by which this etiological factor produces its variety of manifestations.

No one disease entity plays so important a rôle in the pathology of obstetrics as toxemia of pregnancy with or without convulsions.

Early in 1917 I had two cases at about the same time which directed my attention to the association of chronic sepsis with toxemia of pregnancy and eclampsia.

Observations made during the subsequent year convinced me that chronic sepsis was always present in association with toxemia and eclampsia. After writing a paper¹ recording this feature and endeavoring to explain the relationship, I found that La Vake² of Minnesota had written a paper in 1916 to the same effect. Mosher of Kansas City³ has also called attention to the frequent association of chronic sepsis with toxemia of pregnancy. After five years of observation I am still convinced of the constant association of chronic sepsis with toxemia of pregnancy. Here, therefore, is a constant etiological factor of the type which would persist throughout subsequent pregnancies and fulfill the first requirement of the problem.

There are, however, other manifestations of pathology in obstetrics which sometimes occur without the association of toxemia, yet they have so much greater incidence in those cases that are toxic that they are believed to be a part of the clinical entity of toxemia. I refer to such

units as antepartum hemorrhage, abruptio placentae, macerated fetus, hydramnios and deformed babies, and premature babies. My own observations would add to this list miscarriages, inanition fever, and hemorrhagic disease of the new-born.

Can all these manifestations be so correlated as to explain their frequent association with each other and with or without the association of toxemia, and lastly with the hypothetical etiological factor chronic sepsis?

The most constant bit of pathology which is found in association with toxemia of pregnancy is the placental infarct. If this so-called "infarct" can be proved to be infectious in origin, the whole problem can be explained.

Young of Edinburgh¹ has shown that infarction can be caused by thrombosis of the maternal blood-vessels of the placental site.

La Vake of Minnesota² has pointed out that thrombosis in other parts of the body is accepted as infections in origin and further suggests that the chronic sepsis which is always found in association with eclampsia may be the source of the infection which results in the thrombosis of the maternal blood vessels of the placental site. His paper published in 1916 is the first so far as I know which places the cause of eclampsia squarely upon chronic sepsis.

Bacteriological methods to prove that the infarct is infectious in origin have not proved successful. De Lee³ isolated a staphylococcus from an infarct in a single case 20 years ago.

The clinical phase of this problem has not been studied before so far as I know.

The sequence between acute infection in the head and miscarriage and threatened miscarriage has occurred with very impressive frequency in my experience. In the last part of 1920 two cases showed evidence that the damage done by the bleeding in threatened miscarriage was recorded on the edge of the placenta in the form of a white infarct and that the position of these infarcts in relation to the base of the cord demonstrated that the infarct must have originated at the time the bleeding occurred. These two cases were reported in *Surg., Gyn. and Obstet.*, under the title, "A Clinical Study of the Placenta."⁴

Since that time I have been able to acquire a considerable series of cases in which the position of the infarct on the placenta has been coincident with a bleeding spell and in many of them there has also been the clinical factor of an acute infection just preceding the bleeding spell. In some cases an acute cold was recorded on the placenta by an infarct contemporaneous in its position on the placenta but without evidence of bleeding. Using this sequence of events it has been possible in some cases to accurately foretell the shape of the placenta and the position of infarcts on the placenta before birth. This prophecy is subject to so many elements of negative error that it can not be advanced as

infallible. Positive results are, however, very convincing.

The frequency with which uterine bleeding in pregnancy is preceded by active infection in the head is only apparent when it is carefully searched for. The relation of cause and effect in this sequence is convincing when it is found that an acute infection is sometimes recorded on the placenta in the form of a white infarct so situated on the placenta as to show that it originated contemporaneously with the acute infection, although there may have been no evidence of external uterine bleeding. I do not wish to imply that every bleeding spell is preceded by demonstrable acute infection in the head nor is every acute infection recorded on the placenta. Bleeding spells unassociated with acute infection have, however, always been associated with chronic sepsis in my experience.

It must be borne in mind that the early infarct is hemorrhagic in nature and that the white infarct is the end-result of this hemorrhagic lesion.⁷

Clinically the uterine bleeding which is associated with the beginning infarct does not come from the hemorrhagic lesion in the placental tissue but from the uterine blood-vessels, since it is the mother who becomes exsanguinated in uterine hemorrhage.

Besides this clinical evidence there is laboratory evidence that the primary lesion which results in the placental infarct is in the maternal blood-vessels of the placental site and is infectious in origin.

A case reported by Cornell and Earle⁸ is extremely important on account of the unique set of circumstances which made the obtaining of the evidence possible. In this case a woman in her sixth pregnancy had a bleeding spell at the second month, immediately following a chronic cold of three weeks' duration. Examination revealed an asymmetrical uterus, and the abdomen was opened on the diagnosis of extra-uterine pregnancy. A bicornuate uterus was found with a pregnancy in one side and a fibroid in the other. A hysterectomy was decided upon and a complete pathological examination of the placenta and uterus was made with the placenta *in situ*.

It is hard to conceive of another set of surgical indications which would lead to a hysterectomy just following a bleeding spell in a pregnant uterus. The case, therefore, assumes a great importance on the question at issue. The pathological report describes "an abundance of necrotic areas in the decidua adjoining the intervillous space. They show profound necrosis centrally, there may be some hemorrhage and there is a margin densely infiltrated with leucocytes. Slides stained with Gram's stain afford some inconclusive evidence of the presence of Gram-positive cocci but the histological appearance of the necrotic areas points clearly to their infectious origin."

To summarize this case we have multiple direct hemorrhagic lesions of infectious origin in the decidua basalis and in association with a threatened miscarriage which in turn was immediately preceded by infection in the throat.

W. S. Thompson of Johns Hopkins⁹ has reported a case of hysterectomy on a case of complete placenta praevia. The pathological examination was made with the placenta *in situ* and the report contains the following extracts. "At the junction of the decidua with the chorionic membrane there are numerous areas of closely packed polymorphonuclear leukocytes in various stages of preservation which apparently represent minute miliary abscesses. Sections through the posterior wall of the placental site show that the placenta is almost entirely infarcted and presents numerous areas of calcification. Leucocytes extended far out into the muscularis, forming parallel rows between the fibers." This histological examination of the uterine tissues beneath this much infarcted placenta shows marked evidence of long standing infection.

It is my belief that the first case represents the picture of beginning infarction of the placenta; the second is the picture of the end-result.

The infectious origin of the infarct is again supported by the clinical observation that it is most frequently found in association with three diseases—toxemia of pregnancy, chronic nephritis, and syphilis. Toxemia of pregnancy is constantly associated with chronic sepsis; chronic nephritis is today recognized by many as being the result of chronic sepsis; and syphilis is the best understood of our chronic infectious diseases.

The analogy between the results of syphilis in pregnancy and chronic sepsis in pregnancy is most striking.

Before the Wassermann test was widely used, repeated miscarriages were considered to be a symptom of syphilis. Macerated fetus and deformed babies were also believed to be evidence of syphilis. No one doubts today that syphilis is the etiological factor in many cases of repeated miscarriages, of toxemia, of macerated and deformed babies and of premature births. Infection of the placental site by the spirochaete is known to produce a much damaged placenta and these bacteria often pass through the villous membrane and infect the fetus. Similarly pneumococci,¹⁰ influenza bacilli,¹¹ streptococci¹² and staphylococci¹³ have been found in stillborn and living babies. A case of miliary tuberculosis¹⁴ in a stillborn infant has recently been reported. All this evidence demonstrates plainly the principle of hematogenous infection of the placental site. I believe the situation may be summed up by the statement that everything that syphilis can do in pregnancy can be done by chronic sepsis of other types of bacteria.

The evidence tends to show that such units as threatened miscarriage, miscarriage, ante-

partum hemorrhage and abruptio placentae are all manifestations of the same process, differing only by reason of the site of the lesion, the degree of the damage and the virulence of the bacteria causing the lesion. Threatened miscarriage and antepartum hemorrhage from normally implanted placentas represent bleeding from the edge of the placental site. Miscarriages and complete detachment may result from this process but may also result from retro-placental hemorrhage without initial external hemorrhage.

Macerated fetus and deformed babies result either by direct infection of the fetus or by the interference with the oxygen supply of the fetus. Stockard of Cornell¹⁵ has produced twins, double monsters and deformities in fish by reducing the oxygen supply of the eggs at a crucial time in their development. In my series there are nine consecutive cases of deformed babies which were associated with evidence of placental damage at the base of the cord. The relationship of this damage to the base of the cord shows that the initial lesion occurred very early in the pregnancy.

Hemorrhagic disease of the newborn and inanition fever are evidences of infection of the fetus before birth by the presence of an acute infection of the placental site just previous to or during labor.

All these units depend upon infection of the placental site.

There is much evidence to show that toxemia of pregnancy is not the result of infarct formation or the result of infection of the placental site except that such infection may act as a new area of sepsis.

In a paper of this length it is not possible to discuss toxemia of pregnancy in detail viewed from the standpoint of chronic sepsis as the etiological factor. Let me mention in passing, however, that the multiple areas of necrosis in the liver of the dead elamptic suggest a strong analogy to the multiple necrotic areas found in the placental site of the much infarcted placenta. Emerson of Indianapolis¹⁶ has maintained that chronic nephritis is not a self progressive disease but the result of repeated minute acute infections of the kidney tissue. The analogy between this point of view and the rest of the picture as shown by the much infarcted placenta in association with chronic nephritis and toxemia of pregnancy is likewise most striking.

The degrees of toxemia of pregnancy may be explained by the kinds of bacteria involved in the areas of chronic sepsis and their virulence. This point of view makes it possible to explain why the results of infection of the placental site, such as antepartum hemorrhage, macerated and deformed babies, premature babies, hemorrhagic disease of the new-born and inanition fever are so frequently associated with toxemia

of pregnancy and yet may occur without evidence of toxemia.

The clinical sequence described in the beginning of this paper shows that the source of the sepsis is generally in the teeth or tonsils. Many of these tragedies of obstetrics are, therefore, preventable by the timely removal of these areas of chronic sepsis.

The removal of chronic sepsis in the presence of a pregnancy has, however, very definite limitations. There is a well known saying current among the medical and dental professions and among the laity that dentistry should not be done during pregnancy. I believe this saying is well founded when it is limited to the treatment of septic conditions in the teeth. It is well recognized that miscarriage is most frequent up to and including the third month of pregnancy. Up to that time the placental site is relatively small. A beginning infarct during this time would be more liable to terminate the function of a relatively large part of the placental area. If this damaged area is proportionately large enough it will asphyxiate the fetus by reducing the available oxygen supply and a miscarriage will result. It is, therefore, not safe to take a chance on increasing the activity of sepsis before the beginning of the fourth month.

It is likewise true that chronic sepsis should not be disturbed in the presence of toxemia of pregnancy. It is well recognized that many cases of toxemia are apparently precipitated by acute infection.

I heartily agree with La Vake,¹⁷ who believes that it should not be the duty of the obstetrician to remove chronic sepsis and that the proper time for its removal is either before or between pregnancies.

If chronic sepsis is found, however, in the pregnant woman, experience has shown that the safest time to have it removed is between the fourth and seventh month of her pregnancy.

CONCLUSIONS.

1.—The white placental infarct is the end-result of a hemorrhagic lesion, its evolution being described as a coagulation necrosis.

2.—The lesion is a discreet process, often multiple and often repeated in the same placenta.

3.—The placental lesion is secondary to a hemorrhagic lesion in the maternal blood vessels of the placental site.

4.—There is clinical and histological evidence that the primary lesion in the maternal blood-vessels of the placental site is infectious in origin.

5.—The clinical sequence of events observed shows that the lesion is the result of hematogenous infection and that the source of the infection is generally to be found in the teeth or tonsils.

6.—By the determination of the infectious origin of placental infarcts, a large clinical en-

tity is demonstrated in pregnancy which has chronic sepsis as its initial lesion.

7.—Treatment by the removal of areas of chronic sepsis in the presence of a pregnancy should be pursued with the greatest caution.

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DISCUSSION OF DR. TALBOT'S PAPER.

DR. S. B. WOLBACH, Boston: There are a number of things in Dr. Talbot's paper that interest me. One is that one may time the occurrence of placental infarcts with something that has happened to the individual during the pregnancy. That seems very important because it gives the obstetrician or clinician an opportunity to test out one of the main points of Dr. Talbot's paper. I believe that it is probable that the growth of the placenta is only by peripheral extension. That has always been my conception, and I have conversed with embryologists in regard to this. When the fetal villi have implanted themselves they stay placed and new fetal villi extend peripherally during the growth of the placenta. An infarct at the extreme periphery of a fully developed placenta can occur only very late in the pregnancy. This can be tested out by anyone in charge of pregnant women.

I think Dr. Talbot should be congratulated upon having impressed that fact upon us.

The circulation in the placenta, of course, is extremely interesting, and the wonder is that accidents don't happen more frequently. Embryologists and physiologists have called attention to these large pools in which the blood bathes the fetal villi and the fact that the villi are not covered with endothelium but with epithelium. Of course, we don't know much about what goes on in the placental circulation, but theoretically it affords a good place for accidents, and from *a priori* reasoning, for the localization of infectious agents. From our work on animals we find that infection of the placenta occurs quite often. In working with organisms of low power of invasion we find that these organisms often invade the placental tissue, while other tissues are not invaded. I became interested in this some years ago, and know that it is possible to test out some of Dr. Talbot's work experimentally.

The only part of Dr. Talbot's paper I would deprecate in any way is the extent of his conclusions. I should think he must present much more evidence be-

fore he can prove that hemorrhagic disease of the new-born is due to infarction of the placenta. I deprecate that slightly, and also his use of the term "chronic sepsis." I should rather have him speak of coincident sepsis than of chronic sepsis, and leave the question of the importance of the tonsils and teeth in the same category where we place them in respect to some other diseases of infectious origin, such as chronic arthritis.

I want to impress upon you the strong impression that Dr. Talbot's paper has made not only upon myself but upon some other pathologists, and I sincerely hope that eventually we will learn more about the pathology of the placenta. If practitioners wish help from the pathologist in working out questions of this sort, the initiative must come from the practitioner; and it is desirable that he should do as much of the research as possible, aided by the pathologist.

DR. JAMES R. TORBERT, Boston: I have had the pleasure of discussing this subject with Dr. Talbot at prior meetings, and we are agreed. He is enthusiastic about his conclusions for he has done a great deal of work on the subject. He has taken a subject upon which, as you all know, the etiology is more or less in doubt and he has worked it up very well. I am basing my conclusions on the observations of a great many cases at the Lying-In Hospital here in town and also on a great many cases in private practice, and I can't believe that he has proven his point. For instance, we have seen in the last five years 6,000 cases at the Lying-In Hospital, with one case of eclampsia. We haven't found in that list any evidence to account for the fact that there is a focal infection in these cases. We have all the time in the hospital from five to six cases of toxemia of pregnancy, and since 1919, when this paper first came out, we have been looking for chronic sepsis constantly; and we don't always find it. Sometimes we do find it, and I cannot help but believe that there is something else at the bottom of this thing than chronic sepsis.

Now as to the question of infarcts in the placenta—we have been interested in that to a large extent, and we find a great many instances of infarcts which we can't explain at all. That is, there are no clinical data associated with these cases. Dr. Talbot has seen several of these cases with us and has admitted that he couldn't tell what had happened. I had a case last night in a patient who had a normal child and who had a normal pregnancy throughout, and yet who produced this malformation of the placenta in which we should be able to put our finger on the cause, but there was nothing to be seen in this case. The way I feel about the subject is that this may be one of the causes, but it has not been proven yet; and the fact we have so many cases that show no evidence of chronic sepsis proves the question to be one that is still open for discussion. I have no theory or facts to contradict this other than clinical observation, and I have no idea about the cause of eclampsia. Dr. Wobach said that when we get up here we will have the assistance of the pathology department and chemistry department and thus we may be able to get a line on the cause, but I have followed Dr. Talbot's paper since 1919 and I am not convinced that there is enough in it to be the actual cause of the condition.

He mentions another subject which we discussed together and that is, the careful observation of these cases. Now, at the Lying-In Hospital it is very difficult to get a definite history of a slight hemorrhage which has occurred during pregnancy. That is perfectly true, we all agree; but on the other hand, where I had been able to get a definite history, I haven't been able to make the facts agree with the pathologist's findings which were present, and I think that there is something else besides this condition which he mentioned as a basis for the various combinations. I feel that my point is very weakly taken, but it is simply the result of observation on a large number of cases, and the only one I have come across where

there was definite evidence of chronic sepsis is one case of eclampsia where there was definite infection in the mouth. In the other cases we haven't x-rayed all the teeth, as Dr. Talbot suggests, but there was no clinical evidence of infection in the mouth at the time of the convulsive seizures or afterwards.

DR. FREDERICK C. IRVING, Boston: I am very much inclined to agree with Dr. Torbert on this question. I think Dr. Talbot has made an important contribution to the theory concerning the pre-eclamptic toxemia. In other words, I think his focal infection theory is worthy of taking its place amongst the other theories such as the nephritic theory, the numerous biochemical and serological theories which have been advanced, and the intestinal toxemia theory of the Dublin school. But I agree with Dr. Torbert that I don't think it is the whole story. And the reasons I don't think it is the whole story are these: In the first place, in order to demonstrate anything in medicine or in anything else you not only have to prove that a certain fact is true but you have to prove that the opposite cannot be true. In other words, you have to have controls. Now, if Dr. Talbot has been able to demonstrate that his cases that did not have toxemia or did not have deformed babies or placenta previa or miscarriage, did not have chronic sepsis, then I think we would be more ready to accept his theory. Also there is lacking the bacteriological proof. There is no bacteriological evidence to prove that the same micro-organism which caused sepsis caused any of these conditions. Moreover, as I understand it, in his opinion chronic sepsis is in some way involved in the following conditions: toxemia, placenta previa, separation of the normally implanted placenta, miscarriage, premature labor, deformed children, jaundice fever and hemorrhagic disease of the new-born. If that is so, it is a unique situation in medicine. Even syphilis, which has so many manifestations, has not so many as this. And it seems to me, to say the least, it is unlikely. Another thing which is hard for me to understand is why chronic sepsis should not be drained during pregnancy. Why, if it is the etiological factor, should it not be eliminated, that is, the sepsis treated under surgical principles? I believe in other conditions where chronic sepsis is believed to be the causative factor, drainage is indicated. At the pregnancy clinic at the Lying-In Hospital we have a class of patients who are not particularly careful about dental hygiene. Their teeth are in an unbelievably bad condition. There must be a great deal of chronic sepsis among them, and yet we find in a series of 5,000 consecutive cases that toxemia occurred in only one and a half per cent. It seems to me if chronic sepsis and sepsis of the teeth are so important, that we would have found toxemia much more commonly than we have.

DR. F. S. DELUE, Boston: I believe that there is another factor here other than chronic sepsis. I firmly believe that the process is a nutritional one and that that which causes the focal infection causes the hemorrhage. The condition of the body which robs it of its supply of lime and various other alkalies which neutralize the acids is the condition which gives rise to hemorrhage, whether it be in the eye, skin or placenta or elsewhere. I have found invariably that those cases were cases of primary acidosis, cases in which the lime was evidently deficient in one part of the body or another. Ten years ago I showed Dr. Wobach a peridental abscess which I told him I could produce at will. In these infections there may be hemorrhage around the teeth, into the anterior chamber, or into the skin, and these are entirely due to improper eating, eating acid fruit being one cause. You have been taught that fruits render the body fluids alkaline whereas it is just the reverse. In using the hydrogen ion concentration test you find that fruits are distinctly acid. When you are constantly using up your lime supply and piling in acid

you get your hemorrhages, due to the alkaline supply being disturbed. We find this condition where there are no teeth and no infected tonsils to act as the focus of infection. The process is an aseptic one; if there are germs present they are secondary and not primary. If you have a rotten tooth or an infected tonsil, take it out; but that isn't the cause of the trouble. That which causes the acidosis causes the hemorrhage, in my opinion.

DR. CRAM: I have a patient who is six months pregnant, about 26 years of age, first pregnancy. X-ray has shown that she has two teeth in the lower jaw which have not erupted, and she has some pus from those teeth. Would you advise having those teeth extracted?

DR. JOHN E. TALBOT, Worcester: I do, as a matter of prevention.

DR. JOHN E. TALBOT, Worcester (closing): It is impossible to take up all the details in the time allotted. One thing is sure. I cannot share Dr. Torbert's views. He shows that he has a mistaken point of view of what I was trying to show. I do not claim that I can explain everything that shows in the placenta. The injury to the edge of the placenta is the type of injury which I am talking about, an infarct on the edge of the placenta. I think if you confine your study to that point, you will see that there is a great difference in the findings. I cannot take a placenta and look at it and tell all that has happened in the past history or whether there was clinical evidence of the damage. Chronic sepsis often works silently, without demonstrable clinical signs. The truth is shown by the demonstrable acute infections and the damage to the placenta contemporaneous with that acute infection.

With regard to the pathological study of the placental damage it seems to me the truth of the situation is to be found in the examination of the placenta *in situ*. The infection is in the uterine blood-vessels, not in the placenta. The infection does not necessarily cross the villous membrane. The infarct is an aseptic lesion as compared to the septic lesion which is in the maternal blood-vessels.

EPILEPSY.

By D. A. THOM, M.D., BOSTON.

To discuss the subject assigned me by the secretary of your section, in the time allotted, necessitates a selection of certain aspects of the problem which are of particular importance, and a consideration of them in their relation to the subject in its entirety.

No longer do we look upon convulsions, loss of consciousness, and changes in personality, as a disease entity, but rather as a syndrome of some underlying pathological condition.

The old conception of epilepsy and the search for some definite pathogenic factor with a no less definite anatomical location accounts to a great degree for our present-day ignorance regarding the etiological factors producing convulsions and therapeutic measures with which to combat them.

The syndrome which goes to make up the condition which has borne the name of epilepsy is neither constant nor characteristic. The signs and symptoms may be as numerous and as varied as it is possible for any organic lesion or psychogenic mechanism to produce which needs no definite pathology, no particular anatomical

site, no specific toxin or pathogenic organism. The convulsions caused by a lesion of the kidney are quite indistinguishable from those produced by an acute infection. In neither case may they differ from idiopathic epilepsy.

Notwithstanding the fact that it is highly desirable from a scientific point of view and for the good of the patient to look upon the convulsive disorders in this way and to utilize all our clinical and laboratory facilities in an effort to determine the underlying cause, all too frequently we are confronted with a residual which defies this method of scientific approach, and it is this group that we may quite properly term idiopathic epilepsy.

Before we are justified in making a diagnosis of epilepsy, it is necessary at the outset to eliminate the following organic conditions which are accompanied more or less frequently by convulsions.

Convulsions due to Gross Brain Lesions.

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| 1. Paresis | 2. Cerebro-spinal syphilis |
| 3. Brain cysts | 4. Hydrocephalus |
| 5. Meningitis | 6. Trauma |
| Tubercular Syphilitic | |
| 7. Encephalitis | 8. Arteriosclerosis (cerebral) |

Convulsions of Toxic Origin.

- A. Endogenous—Uremia, Diabetes, Auto Intoxication.
 B. Exogenous—Lead, arsenic, alcohol, strychnine.
 C. Infectious—1. By toxemia. 2. By producing a meningitis.

Conditions other than those mentioned.

Disturbances of the Internal Secretions.
 Disturbances of the Cardio Vascular System.

After the foregoing conditions have been excluded, of which either loss of consciousness or convulsions might be a symptom, such as a brain tumor, uremia or a syphilitic meningitis, we are still confronted with perhaps our most difficult task by a group of borderland cases, which seem to lie in that portion of the diagnostic field called No Man's Land. I refer to the convulsions observed so frequently in association with hysteria, and will review the diagnostic points in another part of the paper. Imagine, for a moment, this step has already been carried out and we are left with the residual which represents what we please to term essential or idiopathic epilepsy.

My conception of idiopathic epilepsy necessitates the presumption of an inherent, unstable nervous system, or perhaps it would be best understood if stated in terms of deficiency in the nerve cells and its processes and its inability to resist reacting to stimuli of such quality and quantity that would not ordinarily affect a normal nervous system.

Such a nervous system is able to cope with a *limited amount* of mental stress and strain quite efficiently. Many such individuals are combating successfully the every-day problems of life. It is only when the potential epileptic is confronted by circumstances and conditions which require mental stamina or physical endurance in excess of this average, that he finds that his limited reserve has been completely utilized and there is no further resistance to stimuli, regardless of their origin.

The war was an especially good example of a situation which was continually and repeatedly demanding a degree of stability of the nervous system far greater than most conceivable situations, so that many individuals who broke down under such unusual strain, might well have stood the strife of civil life unnerved. There appears to be a limit to the amount of physical strain and mental stress that every individual is capable of bearing, determined not only by the inherent qualities of the individual, but also by the environmental conditions during the formative period of early life.

Some of the theories that have been advanced to account for the convulsive phenomena in idiopathic epilepsy are perhaps worthy of mention. Of the older views and those subscribed to by many authorities of the time, that of *vasomotor spasm* which Tenor and Kusnau sponsored, was perhaps the most popular, as well as the most plausible, the site of the lesion being the vasomotor center in the medulla. Sclerosis of the cornu ammonis and lesions of the sympathetic ganglia described by Merynert and Echebria respectively, both had many adherents in their day. Of the more recent theories which have been presented for our consideration, one which considered the increased rapidity of the coagulation time of the blood as responsible for convulsive disorders, was brought forth in 1912 by Sprangler of Philadelphia who recommended the injection of snake venom as treatment.

Another theory which attributed epilepsy to an infection due to the specific organism called the bacillus epilepticus described by Charles Reed of Cincinnati, ex-President of the American Medical Association, received considerable attention about 1915. The psychogenic theory expounded by Dr. L. Pierce Clark of New York has been gaining many adherents during the past eight years. Clark states that "epilepsy is a psycho-biological reaction and is double motivated. First, it seeks to make away with an intolerable adjustment demand; second, to retreat, to regress where a state of harmony and peace are wont to prevail," referring to the primitive pleasurable state of intrauterine existence.

Dr. Walter E. Dandy of the Johns Hopkins Hospital, presented two cases early in 1920 of epilepsy that had apparently been cured by a new form of operative treatment, and concluded that epilepsy was due to a definite lesion of the

brain stating, "Am encouraged to a hopeful outlook for its treatment." The diagnosis of Jacksonian Epilepsy was made in the first case which was that of a man thirty-four years of age who had definite localizing symptoms. The second case was a boy eight years of age, also suffering from "focal epilepsy." It is obvious that the two cases presented by Dr. Dandy would not have been included in my conception of epilepsy, but inasmuch as his work attracted considerable attention, it seemed worthy of mention.

Dr. John Mason Little recently published in the BOSTON MEDICAL & SURGICAL JOURNAL, January 19, 1922, a most interesting article entitled "Observations on the Operative Treatment of Epilepsy" with a report of fourteen cases. Dr. Little had no "operative deaths" and felt that no harm was done to any of these patients. He states, "Without exception, there was temporary improvement. There were three cases which can be called cures, over eleven and a half years; eleven years, and five months; and ten years. Three are relieved and living useful and happy lives, nine, six, and five years after operation. My general impressions are," says Dr. Little, "that it has been well worth while." He wisely and cautiously sounds a note of warning against overenthusiastic surgery and indiscriminate operating for epilepsy, yet leaves us with but little doubt that there are certain cases that may be benefited by operative procedure, but they should be selected very carefully after intensive study on each case.

Perhaps the most recent experimental work that has been carried on relative to convulsive disorders, is that which has been stimulated by Dr. H. Rawley Geyelin of New York, relative to the acid secretion during prolonged fasting in epileptics. This is the only report available up to this time. Eleven patients, ranging from eleven to thirty-five years of age, were fasted for periods from fifteen to twenty-one days. The fast was employed as a method of treatment on this group and careful examinations were made to determine quantitatively the following substances in the urine; creatinin, creatin, ammonia acid, titrable acid, total acetone bodies and total nitrogen. Quoting from Dr. Geyelin's paper, "There are five cases which show a relative high excretion of total N/10 acid. These cases also show a high total acetone excretion. The remaining seven cases show a relative lower acetone excretion." The therapeutic results observed seem to be somewhat dependent upon the total amount of acid excreted; that is, in general those patients who showed the highest acid excretion, were those who derived the maximum relief of symptoms. All those patients who showed the lower total acid excretion were not improved symptomatically except during the period of fast.

Dr. Stanley Cobb of the Harvard Medical School has devoted much time to experimental

work and clinical observations on the effects of fasting on convulsions, and will be able to give you a much more intelligent account of what may be expected of this method of treating epilepsy than I. I would say, however, that from the evidence presented, and the time that has elapsed since this experimental work began, we have no more reason to expect this line of treatment to be a panacea for all convulsive disorders, than other measures suggested heretofore, so that up to the present time none of the theories which have been advanced to which scientific research could be applied, have stood the test; either the results described were not sufficiently constant to be conclusive or the same lesions have been found to exist with some other clinical entity.

It is perhaps because so many of these idiopathic cases have their origin in childhood or early adolescence that the question of heredity has received, what I consider, undue importance and has had a tendency to lend an air of pessimism and hopelessness in the treatment of these cases.

In a study begun at the Monson State Hospital in 1916, and completed and read at the American Association of Psychiatry just a year ago this time, I was able to substantiate certain preconceived ideas regarding the transmissibility of epilepsy from parent to offspring.

One hundred seventeen cases were selected where the diagnosis of idiopathic epilepsy had been determined. Each case had been married and was a parent of one or more children. The total number of children resulting from these one hundred seventeen matings was four hundred thirty-one, of which two hundred eighty were still living at the time the study was finished, May, 1921. One hundred fifty-one were dead. To summarize briefly, nineteen of the one hundred fifty-one died of convulsions. Of the living cases, fourteen have had convulsions at some time during their life, but six have had remissions for a period varying between four and twenty-four years. The remaining eight of these offspring are still having convulsions and considered epileptic. Of the entire group, 75% of them were over twenty years of age, the zone where 70% of all convulsions begin.

The conclusions drawn from that study were as follows:

1.—Epilepsy as a disease is not transmitted directly from parent to offspring, but we believe rather that it is the nervous system, lacking in the normal stability, that is inherited, and the manifestations of this instability may be mental deficiency of varying degrees, mental diseases of different types, neurological and psychopathic disorders, and convulsions from various exciting causes, which would have little or no effect on a normally developed nervous system.

2.—These mental and nervous disorders are less frequently found in the offspring of the

so-called epileptic than we have heretofore believed and the future of the offspring born of epileptic parents is not as hopeless as the pessimistic authorities on heredity have heretofore stated.

3.—Maternal defects are more frequently manifested in some form or other in the offspring than are the paternal defects and, when present, are more likely to appear at an earlier age.

4.—It was found that in only a few cases were we dealing with "pure cultures of epilepsy." In most instances contamination was brought about by some defect in the other partner such as feeble-mindedness, insanity, alcohol and syphilis.

5.—In this study it was determined that convulsive disorders were more frequently met with in the offspring of the organic group as compared with the idiopathic group. The organic group was, however, so small that too much consideration can not be given to this point. It should, nevertheless, stimulate further inquiry relative to the offspring of normal individuals and a larger group of organic cases.

6.—This study indicates the necessity of research relative to the transmissibility of genetic defects in both epilepsy and psychiatry. We feel that the dogmatism regarding this aspect of mental diseases has not been justified.

Another important problem relative to the convulsive disorders is the relation between convulsions in infancy and early life and the chronic convulsive disorders of adult life. This problem is worthy of far more consideration than it has received up to the present time.

Our attention is constantly attracted to the cases of epilepsy where the history indicates the first convulsion began during some gastrointestinal disturbance, teething, or at the onset of some acute infection, but with the exception of study made by Dr. John Lovett Morse and reported at the thirty-first annual meeting of the American Pediatric Society, no further researches or studies have been made to determine if any relation exists between the symptomatic convulsions in general and the chronic convulsive disorders in adult life.

Dr. Morse's aim was to determine what proportion of the children, having convulsions, but otherwise perfectly normal, had epilepsy, or developed it later, and to find out if there was anything in the history or the manner of the development of the convulsions to show whether or not there were manifestations of epilepsy, or whether they would be followed by epilepsy later. It appears, from his study, based on one hundred and seven cases, altogether too small a number on which to base any conclusions, that the convulsions associated with spasmophilia are likely to cease. One case out of ten became feeble-minded. One of the three cases where the infantile convulsions were associated with whooping cough developed epilepsy. Of thirty-

nine cases in which there was a single convulsion at the onset of some acute disease, two became epileptic and feeble-minded, a third had petit mal attacks and a fourth it is stated might or might not be epileptic. Dr. Morse concluded that it was impossible to determine from the nature of the earlier attacks, what to expect in the way of prognosis and he further stated that epilepsy is more likely to occur when the cause of the attacks is apparently an injury or severe labor than when the apparent cause is disturbance in the digestive tract. The longer the attacks have persisted, the more probable is the diagnosis of epilepsy. The prognosis in infantile convulsions must always be guarded, in fact, there is no way of telling what the subsequent history is going to be.

Another effort is now being made at the Massachusetts General Hospital to add further light on this subject and it may be possible to draw some conclusions which will be of assistance in making a prognosis as to the future in those cases suffering from infantile convulsions.

The evidence at hand all indicates that nothing should be left undone to determine the underlying cause of infantile convulsions and we already have reason to hope that the more modern methods of studying the biochemical reactions of the body will do much toward the solution of this problem. Clinical experience teaches us that in children, otherwise normal mentally and physically, convulsions persisting over any period of time are quite likely to prevent normal mental development, and that many of our infantile monoplegias, hemiplegias, and paraplegias are the result of convulsions and not a symptom of the same underlying process.

Although we do not understand we recognize that the convulsive habit must be taken into consideration and that heroic methods are justifiable in our effort to prevent the development of a motor pathway which may be too easily stimulated into activity.

Another aspect of this perplexing problem of the convulsive disorders is that of differential diagnosis between the functional and the organic cases and the possibility that the two conditions may exist in the same individual. I am forced to admit that, personally, more confusion exists in my own mind regarding the underlying mechanism, as to whether it be physiological or psychological in this group of cases, than in any other field of neurology.

Notwithstanding the clear, clean-cut differential diagnostic points as pictured in most textbooks, there are still many confusing cases which defy our present-day conceptions of either epilepsy or hysteria. The following illustrates this point.

Mrs. C., born in Connecticut, twenty-five years of age, birth and development normal. As a child she was considered unusually bright. When ten years of age she had her first convulsion, and attended the clinic at the Children's

Hospital. They were occurring infrequently, once in two or three months, did not prevent her from continuing her education to the second year in high school, when she left on account of an attack of rheumatic fever. The attacks usually occur at night, but since her marriage three years ago, she has had attacks at infrequent intervals during the day. These attacks are usually precipitated by heated arguments with her husband. There is apparently no aura, consciousness is lost completely, she bites her tongue, but does not wet or soil her clothing. Spells last about ten minutes and, from the description, have none of the dramatic characteristics associated with hysterical attacks.

The home situation was very chaotic when patient first came to the hospital, as the patient's father had accused her husband of endeavoring to have her put away in an institution on account of the frequency of her convulsions. Patient's mother-in-law had her child and she was not permitted to see it, and the patient was living with her own mother and her husband was living at his home. In spite of this estrangement, there seemed to be a desire on the part of both husband and wife for reconciliation and the case was turned over to the Social Service. The family difficulties were ironed out and the patient and her husband and child separated from the other members of the family and started to build up a little home of their own. This was in October, 1921. Patient was seen last May 17th. At that time she had not had a convulsion and things at home were going much more satisfactorily. The point of interest in this case is the fact that this woman having convulsions, beginning at the age of ten, which were epileptic in character, should at the age of twenty-two begin having attacks precipitated by emotional situations which, from an etiological point of view, would have been diagnosed as hysteria, but from the character of the convulsion itself, must be diagnosed as epilepsy.

There seems to be little doubt that convulsions of a psychogenic origin with all the characteristic features of hysteria may occur in an individual suffering from idiopathic epilepsy and I have one case in mind of an ex-soldier who had convulsions following head trauma, who has had three convulsions precipitated by emotional stress. These convulsions, however, were quite the same as our conception of the epileptic phenomena.

I appreciate fully how sketchy this presentation has been but I do not hope to do more than to put forward for the discussion of the meeting some of the present-day views concerning this most baffling condition. The more fundamental problems for consideration, I believe, are as follows:—First, the present-day conceptions of the pathology of the disease syndrome or symptom; second, the importance of hereditary factors; third, the futility of trying to crowd all convulsive disorders under one pathological en-

tity and advocating one specific treatment as a panacea for the condition. These are only a few of the important problems that demand intensive study before we can hope to clear away the present-day confusion concerning convulsions of either organic or functional origin.

DISCUSSION OF DR. THOM'S PAPER.

DR. STANLEY COBB, Boston: Dr. Thom has said that I was interested in the treatment of epilepsy and especially in the starvation treatment. The most useful thing that we have learned since 1915 is the use of luminal. Luminal has been of benefit to many patients and in some cases has made their lives practically free from convulsions. We must look upon treatment by luminal as symptomatic. In other words, we merely substitute it for bromides. You may use luminal over long periods without getting untoward effects as in bromide poisoning. On the other hand, you are more likely in the unstable patient to have psychotic upsets from the use of luminal. Also it is unsafe to use in more than one and one-half grain doses, which should not be repeated more than once in 24 hours. In other words, any patient in whom you have to use more than three grains of luminal in a single day is a patient I would be afraid of, because later if you want to stop the drug, you might have a psychotic upset.

The second recent advance is the starvation treatment started by Conklin, an osteopath, some ten years ago. The fast is carried out for from ten to thirty days; the convulsions have ceased during the course of the fast in almost every case. The results of these fasts have in a small percentage of cases been remarkable; some have had no convulsions for months and years. Now that is an interesting result—not that you can use the treatment for all epileptics, but that it will stop the convulsions on some. The work has been followed up, as Dr. Thom said, by Dr. Geyen at the Presbyterian Hospital in New York, and he has had some satisfactory results; but on the other hand, there have been many cases that have not been substantially benefited. We know that we may stop the convulsions of some epileptics by starvation; if we could learn which cases would be benefited, it would be a useful method. We have so far been unable to learn any criteria by which to pick out those cases.

As to the pathology of epilepsy: Dr. Thom said that if we ruled out brain tumor, syphilis, the trauma cases, the meningitis cases and so forth, we had left a group of cases which we can speak of as "essential epilepsy," and that there were both psychological and organic precipitating factors. These arbitrary classifications are bad. As Dr. Thom said, the one underlying factor is an unstable nervous system, but I see no reason why we should not have that unstable nervous system from syphilis, maldevelopment, old meningitis, encephalitis or polio. As I see more autopsies, I find more organic pathology—an old encephalitis, an old scar or an aplasia. The aplasias show an abnormal placing of the nerve cells or a lack of association fibers, probably inherited; but the amount of old encephalitis or meningitis is larger than I had suspected. As we improve our methods of examination, and if we can obtain autopsies on the early cases, not on the old chronic institutional cases, but the so-called idiopathic sort not having frequent convulsions, I think in these we may find evidence of great importance in relation to what may make the nervous system unstable and allow the factors such as alcohol, focal infection, phimosia, or intestinal upset, to precipitate the convulsions. So when you stop the convulsions in an individual by circumcision or by extracting some bad molars or by a nasal operation, we should look upon the treatment as directed to remove the "last straw" from the patient's back and not as removing the cause of the convulsions.

DR. F. S. DE LEE, Boston: Dr. Thom has said that an unstable nervous system is usually at the foundation of these things. I think that is very true. I don't know of anything that will upset the nervous system as much as the ordinary eyestrain, and yet that isn't the whole story. Dr. Gould some years ago in trying this out went through an epilepsy hospital testing all the eyes and got very few results. Eyestrain is only one element. There is a reflex element here, and I think in those cases in which the eye is at fault we have to do with a reflex gastric hyperacidity which in its turn by irritating the pneumogastric causes the convulsion. I had an interesting case on my farm of a Hollander who had his warning and immediately went into a convulsion if he didn't go into the house for a dose of soda or a glass of milk to neutralize the acid. That may seem strange to many of you. Fifteen years ago I took the son of a Boston lawyer who was having seven convulsions a day when coming under my care at the age of seven years. These started at the age of eleven months. I put him on a diet of skimmed milk and bread without butter. During the winter he gained 9 pounds and his convulsions stopped. He had been operated upon and his skull trephined twice with no relief. I have seen three cases start from eating candy, without a doubt. I usually start my cases by fully correcting all errors of refraction and then attending to the diet.

The boy of seven, above referred to, while being given a bath one night suddenly began to scream. The nurse noticed that he did not have his glasses on and not seeing any other reason for his screaming, placed the glasses before his eyes, whereupon he immediately stopped screaming.

This boy had three dioptres of hypermetropia, which I immediately fully corrected. When first brought to me only one-half of the hypermetropia had been corrected.

I was interested in hearing Dr. Thom say that 13 years ago fasting was first suggested by an osteopath. I never have mentioned the name of the old army surgeon, Dr. Dewey, though over thirty years ago he advocated fasting for almost every disease under the sun.

DR. DOUGLAS A. THOM, Boston (closing): It is quite easy to find organic lesions of the same type in nearly every case of epilepsy. The question is what is the relation between the lesion and symptoms presented. A few years ago at the Monson Hospital we went over 256 autopsied cases, and it was interesting to note that in the high frequency group, those who were having the most convulsions, we found the more normal-looking brains, and in the group of cases that had fewer convulsions we found the abnormal-looking brains.

I don't think it is time to throw away bromides. Many patients stand bromides better than luminal, and in many cases sodium luminal can be combined with bromide, to great advantage.

THE PHYSICIAN AND THE LABORATORY.

By FRANCIS W. PEABODY, M. D., BOSTON.

THE important part which the laboratory has come to play in medical science is generally accepted and appreciated, but the relation which it should bear to clinical practice remains to be satisfactorily defined. It is obvious to all clinicians of experience that the laboratory never can become and never should become the predominating factor in the practice of medicine, but it is equally evident that sound medicine cannot be carried on without the support of the laboratory and that in the future the dependence of the clinic on the laboratory will prob-

ably increase rather than decrease. Among the men engaged in active medical practice, however, only a small minority can ever hope to undertake extensive laboratory work in connection with their patients, and the great majority of physicians are and will continue to be confronted by the difficult problem of their relation to this growing influence in medicine. To the teacher of medicine, whose foremost duty is to prepare his students for the practice of the future, the same problem presents itself, for the students must be thoroughly trained in the laboratory methods that will be of practical service, but not burdened with those that are highly specialized or of questionable value.

The leading exponents of clinical laboratory work are the large hospitals—especially the hospitals associated with teaching institutions—and these exert a profound effect on private medical practice, but the conditions existing in them are such as to demand for them a separate consideration. In such hospitals laboratory investigations fall into one of three categories. The first includes those which belong to the field of pure research, their object being to advance the limits of our knowledge of disease. With this we have, at present, no concern. The second consists of those laboratory methods that are applied in order to obtain direct aid in the diagnosis or treatment of individual cases of disease. This often means the use of standard methods of proved and known value—methods which have received general professional acceptance—but in addition it means the use of many methods of possible value, the significance of which needs to be thoroughly tested under conditions favorable for critical control. The trying out of newly advocated measures for the diagnosis and treatment of disease must always be an important function of the larger and better equipped hospitals. Many—indeed the majority—of such methods are found to be unreliable or of little practical value, and after their status becomes established they are discarded. Very rarely a new method withstands the test of prolonged observation and proves to be of such practical significance that it can be properly advocated for general adoption. This type of hospital thus serves as the court before which all such new ideas must stand trial and it is astonishing, if not depressing, to compare the enormous amount of time and labor that is spent in gathering evidence with the comparatively meagre results that pass the tests. The burden added to the hospital laboratories by such work is very great, but the importance of the function cannot be overestimated, for it filters out what is useful and protects the profession from much that is worthless.

The third category under which hospital laboratory work is carried on depends on the fact that every hospital is or should be an educational institution, and one of its primary duties is the instruction of all the members of the

staff in the nature of disease. Many of the laboratory data, therefore, that fill the pages of carefully compiled hospital records, do not have a direct diagnostic or therapeutic bearing on the individual case, but they contribute information which throws light on the pathological physiology and clarifies the disease process. In so far as the accumulation of such accessory laboratory observations is instructive to those who are studying the patients, the work is more than justified, but if, as sometimes happens, particularly with the younger members of the staff, it leads to the idea that all these observations are necessary for the proper diagnosis and treatment of any given case, the result may be most unfortunate. Properly used, such laboratory observations are enlightening and broadening; improperly used, they are blinding and narrowing. The real reason for taking an electrocardiogram on every patient with a cardiac arrhythmia is so that after one has studied the records of a large series of cases, he may understand the clinical manifestations of cardiac irregularities so well that he is able to recognize the type of arrhythmia without the electrocardiogram. His increased knowledge should, on the one hand, emancipate him from the need of the complicated apparatus in most cases, and, on the other hand, help him to appreciate the occasional case in which careful instrumental study is desirable. From this point of view, therefore, much hospital laboratory work may be regarded as of indirect significance for the individual patient, but aimed at the training of better clinicians. When, as sometimes happens, it results in the production of poor clinicians, unable to interpret disease except through the eyes of the laboratory, its purpose has failed and failed seriously.

The physician engaged in the actual practice of medicine is directly concerned, therefore, with only a small part of the laboratory work which is carried on in the larger hospitals, for his attention must necessarily be focussed entirely on those methods which contribute immediately to the better care of his patients. The methods of the teaching clinic cannot and should not be carried into extramural practice. In the hospital all manner of tests can readily be performed in obscure or doubtful cases, but in private practice the economic factor usually restricts one to the tests which most obviously offer practical assistance. Fortunately, however,—and this is apparently contrary to much present-day opinion,—good medicine does not consist in the indiscriminate application of laboratory examinations to a patient, but rather in having so clear a comprehension of the probabilities and possibilities of a case as to know what tests may be expected to give information of value. Even so-called thoroughness should be tempered by reason, and the reason that must dictate the part which laboratory tests shall play in any given case must be the result of a combination of clinical experience with an un-

derstanding of the physiological significance of the available tests.

For the physician in private practice laboratory tests fall into two main classes. The first consists of those which every educated doctor should be able to carry out, and the second consists of tests which are more difficult in technique and which should be attempted only by a limited number of men who have been able to devote the time necessary to acquire specialized training. Fortunately, the first class is by far the more important of the two.

The laboratory tests which should be at the command of every practitioner of medicine are those which deal with the more important and practically useful examinations of the blood, urine, feces, gastric contents, spinal fluids, pleural and ascitic fluids. These are the tests that are customarily taught in the medical schools in the course in clinical pathology, and the instruction is usually designed to take up the laboratory methods that are absolutely necessary for good practice and those only. An experience in teaching this subject during the last seven years has emphasized the striking fact that in spite of the great contributions which the laboratory has made to clinical medicine there has been surprisingly little change in the character or number of the technical methods which are essential for good practice. In many instances the progress of medical science has resulted in a clearer, broader, and more helpful interpretation of the tests, but the actual technical procedures have not been greatly altered and they are still available to the trained man who has a minimum of laboratory apparatus. It has, indeed, been interesting to find how little new material in the way of technical procedure could justifiably be added to the course from year to year, even though the literature and the practices of various clinics were carefully followed in the attempt to keep the course up to date. The methods for the examination of the urine, for instance, are taught much as they were two decades and more ago. Certain tests, such as urea determinations, have been discarded and others are regarded as having a different significance, but the records still show the color, specific gravity, reaction, albumin and sugar content, and the microscopic examination of the sediment. These simple observations, correctly used and interpreted, are practically all that is necessary in cases of nephritis. The modern "two hour renal test" requires nothing more than determinations of volume and specific gravity, and if it is combined with the phenolsulphonephthalein test,—the technique of which is entirely simple,—the field is open for the study of renal function. It is far more important to understand the significance of these easy tests than it is to worry about the quantitation of blood urea or blood uric acid. The situation is much the same with regard to hematology. The technical procedures of primary value are now as

they have been for years, the counting of white cells and red cells, the estimating of hemoglobin, and the preparation of stained specimens of blood. Quite recently the students at the Harvard Medical School have also been instructed in the methods of counting platelets and of staining reticulated cells, but neither of these procedures involves any essentially new technique. With these, and one or two other tests, such as coagulation time and bleeding time, the field of hematology is open. Again, the technique has been altered but little, and little has been added to it, but modern investigations have brought to it a greater significance. In the examination of the spinal fluid the cell count, which is the most important point, is merely an adaptation of the method of counting blood leucocytes, and not a new technical process. With regard to the examination of the gastric contents, body fluids, and feces the same argument holds true; none of them involves difficult or prolonged examinations or expensive apparatus, and all of them yield information of the highest value to the man trained in their use and interpretation. Here, however, is the crux of the situation. All of these so-called routine tests are easy and consume little time in the hands of a trained man, but they are difficult, time-consuming, and of little value in the hands of an untrained man. What is really needed in the application of laboratory methods to the practice of medicine is not a knowledge of more technical procedures, but a much more exact knowledge of a few technical procedures. Experience has shown that a proper degree of technical skill can rarely be obtained during the medical school course, and it should be the duty of every hospital to see that no house officer receives his diploma unless he has demonstrated an ability to perform satisfactorily all the simpler laboratory examinations and has shown a knowledge of how to use the results in the study of his patient. If every physician was so much at home with the technique of the simpler tests that it was quicker for him to apply them than to wonder whether they were worth while applying, and if he understood how to interpret these tests and gain the maximum information from them, the problem of the relation of the physician to the laboratory would be largely settled.

The second group of laboratory methods having a direct bearing on the practice of medicine consists of those which involve highly specialized technique and complicated apparatus. Electrocardiography, basal metabolism determinations, the Wassermann reaction, clinical bacteriology, and the various types of chemical analysis of the blood fall into this category. The information to be elicited from these and other analogous methods is often extremely valuable, but their application is necessary only in a comparatively limited number of cases. As a whole, these methods do not have the broad general sig-

nificance and importance that characterize the simpler tests just referred to. It is, of course, highly desirable that they should be available to practicing physicians so that they may be used in the cases in which they are particularly indicated, but fortunately there is no necessity for the great majority of physicians to bother themselves about the details of technique. This should be relegated to a small number of men who are devoting their attention to specialized fields. Simplified technical procedures, supposed to be adapted to the use of practicing physicians, are continually being advocated as substitutes for the recognized standard methods employed in performing some of these tests, but they are frequently unreliable or reliable only in the hands of one who has a thorough knowledge of all the sources of error, so that it is far wiser to avoid them and to obtain the dependable observations of experts. The clinician may, therefore, neglect the technical side of these more elaborate tests with a clear conscience, but in so doing he should not feel that he may drop the matter entirely. If he is ever to make use of them—and this the welfare of his patients may demand—he must have an understanding of their significance and of the physiology underlying them. He must know when they are indicated and when they cannot be expected to give important evidence. A little insight into the fundamental principles of metabolism, for instance, and a recognition of the common relationship between increased heat production, pulse rate, and certain other symptoms are of the greatest help in deciding in what cases an observation of the basal metabolism may be of diagnostic significance and in what cases it is entirely superfluous. It is much more important to know in what particular case a determination of the basal metabolism may be of value than it is to know the details of the performance of the test. Then again, the physician should be able to interpret the results of the test in the light of his individual patient. A basal metabolism which is reported as 15 per cent. above normal may or may not be significant, and an electrocardiogram showing a prolonged conduction time may be due to one of several factors, but in either case the physician should not be forced to depend for the interpretation on the man who does the laboratory work and who presumably has a less intimate knowledge of the clinical condition of the patient. The clinician himself should be able to appraise the laboratory findings if the patient is to derive the greatest benefit.

It is frequently alleged that many of our medical schools and teaching hospitals are producing "laboratory men" instead of clinicians. If it is true that the graduates of these institutions enter the practice of medicine handicapped by their dependence on the laboratory, then the system of training is wrong or—what seems more probable—it is imperfectly carried out. When schools and hospitals do their full duty their

graduates will have had an opportunity to study disease intensively, checking and controlling their bedside observations by a variety of exact laboratory investigations. Such an experience will enable them to correlate the clinical manifestations of disease with the underlying physiological processes so that they can subsequently understand and interpret disease without recourse to all the laboratory procedures which were necessary in their student days. They will enter practice trained so thoroughly in a limited number of simple technical methods that they will not hesitate to use them, and they will understand all of their significance. They will also know when more complicated tests are indicated and how to interpret the results. In spite of the extraordinary influence which the laboratory has had on the development of medical science there is as yet no cause for the physician to feel that he cannot keep up with the requirements of the best modern practice. All of the more important elements are easily within his grasp. The need in clinical medicine continues to be, not for men trained in many laboratory methods but for men well grounded in a few methods—not for better technicians, but for better clinicians.

DISCUSSION OF DR. PEABODY'S PAPER.

DR. GEORGE R. MINOT, Boston: I think that Dr. Peabody has concisely pointed out the relation of the physician to the laboratory. As he has said, the future development is for better clinicians rather than better technicians. Good technicians are, of course, indispensable. Laboratory findings must be considered simply as additional clinical symptoms. They should be used to assist in, rather than to determine, the diagnosis, prognosis or treatment. We must not forget that the patient is the centre of our professional life, and not some isolated data directly or indirectly referable to the individual.

It is not uncommon to see patients who think they have been thoroughly studied and have obtained an undoubtedly correct opinion because they have had an endless number of tests made and have been furnished with extensive reports, often meaningless. In turn, the physician at times seems to feel that "if all the tests are done" then he has overlooked nothing; such a man often gives little attention to the accuracy of the tests and loses sight of the fact that proper interpretation of the results is fundamental. In other words, in utilizing the laboratory, one must use his mind and not make acceptance of dogma. In obscure cases for study, all forms of tests may be justifiable and desirable, but to undertake these blindly is wasteful and useless. Such a procedure without mediation tends to lead one to not making use of our best methods of diagnosis, namely, what we see upon looking at the patient and what he tells us by his own words, together with well-directed questions on our part.

It may be emphasized that the clinician should know the principle of the tests and the nature of the technic so as to appreciate the possibilities of error. He should realize the difference of one man's analysis and report from that of another. The same is true of a roentgen ray examination. Two men may describe the same shadow in the gall-bladder region in very different terms and yet give it the same significance or they may evaluate the finding quite differently.

Figures tend to lead one to a sense of false security. Clinical information is seldom appraised in figures. Laboratory data, on the other hand, is often

expressed in figures which are apt to lead one to the conclusion that such data are final and judgment is not required. This is incorrect, for judgment is often the sole method of arriving at the figure. Likewise, figures presented by a technician must be judged as to correctness and evaluated by the clinician. One is apt to be satisfied with figures and to believe they express exactness, forgetting that when used for certain laboratory data they may vary widely with technique and that they often express only approximate values.

The laboratory examinations in many instances should be made in the light of the clinical findings. Much better laboratory work will be done if, for example, one submits a blood smear for examination, stating that malaria is suspected, rather than simply requesting examination of the smear. The technician should have information regarding the clinical aspects of the case in order to know in what manner to approach the laboratory problem.

One must bear in mind that positive results usually should have clinical evidence to support them and that negative examinations are to be cautiously interpreted and repeated if other clinical symptoms do not agree.

Laboratory examinations are too often exceedingly simple and yet often neglected. A common one to neglect is that of studying the stool by inspection; an examination from which one often can obtain a great deal of information.

If the laboratory examination is reported on incorrectly, it seldom seriously injures the patient. However, there is at least one instance where it may kill the patient, and that is by an incorrect report on the iso-agglutination tests for the selection of a donor for transfusion of blood. One may select a wrong donor on account of improperly made compatibility tests, and as a result the patient may die. However, the proper selection of a donor does not depend solely on the laboratory and technician. The clinician must determine this, for he must decide whether the donor is healthy or has any transmissible disease, whether he can safely give the amount of blood desired for the patient, etc. Therefore, the laboratory does not do all; the final analysis is the duty of the clinician.

LEAD POISONING.

By WADE WRIGHT, M.D., BOSTON.

LEAD poisoning is a disease of increasing importance to physicians. The condition is usually of industrial origin and because of the great variety of trade processes in which some form of lead is used, there are many industrial workers exposed in some degree to the poison.

Cases of lead poisoning which cannot be traced to industrial exposures are not infrequent. Seven per cent. of a large group of cases recently recorded were of non-industrial origin. They may be attributed usually to lead piping of water supplies. During recent months a considerable number of cases has apparently originated in the highly specialized lead piping of condensers attached to unlicensed stills.

Studies made in the Industrial Clinic of the Massachusetts General Hospital showed that nearly 2 per cent. of all patients admitted to the Out-Patient Department were employed at work which exposed them to lead. Of this exposed group about 10 per cent. present evidences of industrial lead poisoning.

Traditionally plumbism is especially common among house painters, but of a large group of

cases of poisoning, house painters constituted but 37 per cent. Various other painting trades, as spray painting, dip painting, and automobile painting, are also responsible for lead poisoning.

Scores of occupations may lead to poisoning. There may be mentioned in connection with structural iron work the jobs of drillers, reamers and riveters; with the rubber industry, compounders, mixers and calenderers; with the printing trades, compositors, linotypers, monotypers and stereotypers; and among other trades, plumbers, steamfitters and gasfitters; sheet metal workers, tinsmiths, electric cable splicers, brass moulders, lead glaziers and handlers of insecticides.

Exposure to lead is so common that physicians may well keep it in mind as a possible explanation of clinical findings of obscure origin when such findings are analogous to those traceable to poisoning by lead.

Despite the fact that lead poisoning has long been studied both clinically and by laboratory methods, there does not yet exist satisfactory and conclusive evidence regarding the mode of entrance of lead into the body and regarding its later disposition in body tissues and organs. Lead is probably capable of entering through the skin, but not in important quantities under industrial conditions. It may be taken in through the nose or mouth and swallowed or be drawn into the lungs. Poisoning can be produced by the introduction of lead through either the respiratory or the alimentary tract, but there is good reason for believing that lead by inhalation is more readily toxic than that received by ingestion.

Laboratory evidence concerning this matter is more valuable than that obtainable from clinical observation of cases originating in contact with various lead dusts as it is obvious that much of the dust drawn in through the nose or mouth of an individual may be swallowed. It is notable, however, that trade processes productive of lead-laden dusts are more hazardous than those with which dust is not associated.

There is probably no recognized poisonous agent which is not known to exert its toxic effects in varying degree upon different individuals. Varying susceptibility to lead is strikingly manifested among lead workers. Cases of poisoning have been reported after exposure of but a few days, while many men have worked with apparent safety through long terms of service in contact with large quantities of some form of lead ordinarily considered dangerous. It is probable that this idiosyncrasy may be at least in part explained through careful observation and examination of persons relatively immune to lead. Considerable evidence exists pointing to a much greater susceptibility to lead among women than among men.

One group of cases of lead poisoning studied showed an average duration in trade, at the time of diagnosis, of nine years, two months.

It is not possible to state with accuracy the average period of exposure prior to the onset of poisoning, for lead poisoning is usually insidious in its development.

It is apparent that an individual may take into his body considerable quantities of lead and yet present no symptoms or signs which suggest lead poisoning or warrant such a diagnosis. It is conceivable that all persons exhibiting such evidence of lead absorption as a lead line on the gums are in some degree affected by the presence of the metal in the tissues, but as a matter of practical judgment physicians must at present recognize the existence of lead absorption without determinable poisoning. It is an issue of medico-legal importance because of its bearing upon decisions under workmen's compensation acts.

The manifestations of lead poisoning are many and varied. For years the popular medical conception of the disease concerned little more than colic, constipation, wrist drop, the blue line and basophilic stippling of red blood-cells. Though these signs are frequently encountered, they do not fairly constitute a clinical picture of the disease. Few disorders present as diverse a symptomatology as lead poisoning. There is no characteristic syndrome. Certain symptoms and signs are, however, more frequently encountered than others.

Abdominal pain is usually noted. This pain is cramping in character and localized most commonly in one or both lower quadrants or about the navel. It is much less often epigastric. It may be almost constant over periods of hours or be of short duration. It seems to bear no relation to meals. Chronic constipation is reported in most instances. Diarrhea may exist but is rare.

Vomiting occasionally occurs in severe and especially in relatively acute cases. Epigastric distress, nausea and eructations are common. The appetite usually is poor, but failure of the appetite, contrary to a prevalent impression, is not a reliable early sign of poisoning. Loss of weight is of importance. There is often progressive loss antedating the onset of evidence of disease recognized by the patient. A sense of tiredness and general weakness is an almost invariable complaint.

Symptoms of cardio-respiratory disease are generally associated with evidences of nephritis. Arteriosclerosis is said to be caused by lead poisoning. It is certainly often observed, as is also chronic nephritis. An acute nephritis is unusual, but may be observed in cases of comparatively acute poisoning.

Affection of the nervous system is very common in lead poisoning. In many cases there is early impairment of the memory. Disturbances of vision exist, though rarely. Headache and dizziness are often present. Loss of consciousness and convulsions may be caused by lead and usually lead to a diagnosis of epilepsy.

Somewhat indefinite pain in the muscles, as of the thighs or arms and of the back, is common. Pain in the joints, especially of the knees and elbows, is an important and usually early symptom. Gout, associated with lead poisoning, in painters is possibly directly related to the effects of turpentine and has been observed in a small percentage of cases. Bursitis is not infrequent. Numerous cases of elbow pain in connection with lead poisoning have been studied in the Industrial Clinic of the Massachusetts General Hospital. In a few instances the pain was closely localized to the external epicondyle of the humerus, but the majority showed tenderness on pressure over the head of the radius, the site of a bursa described by Dr. Robert Osgood.

Physical examination of cases of lead poisoning may reveal but few definite signs of the disease.

There is customarily some degree of pallor, often of a grayish hue in well marked cases. It is possible that the characteristic pallor is not due alone to anemia but also to vasomotor changes. Marked pallor may exist in the presence of a comparatively high hemoglobin content of the blood. Loss of subcutaneous fat and progressive wasting are usually noted as the disease advances.

The eyes show, rarely, evidence of paralysis of the muscles. Retinal changes may produce the picture of albuminuric retinitis. Eye reflexes are not affected.

A blue line in the gums has been considered by many physicians as evidence of lead poisoning. It is not, however, a pathognomonic sign. Blue lines may be produced by other metals than lead, such as mercury, and even in a lead worker, the blue line of itself signifies only exposure to lead and lead absorption. There can be no doubt that many well defined lead lines are overlooked in routine physical examinations. Gums which upon casual survey show no abnormality may disclose upon careful examination a fine dotted blue-black marking near the dental edge of the gum, a line often rendered readily visible when the edge of the gum is gently rubbed with a piece of gauze to remove epithelium, food particles and pus, and a hand lens employed, with good illumination.

The heart is not involved in most cases of mild lead poisoning. With advanced arteriosclerosis, cardiac changes incident to such a condition may be noted. Slowing of the pulse rate during attacks of colic is occasionally marked.

The examination of the abdomen usually results in negative findings. Tenderness other than that ordinarily related to constipation is not common. Even during attacks of colic pressure on the abdomen affords relief rather than causes pain.

Early in the disease there usually develops weakness of the extensor muscles of the forearm, more marked in the arm most used at work.

Though other groups of muscles may become affected, this antibrachial type is the most common form of paralysis. Complete wrist drop is a classic sign of lead poisoning, but it is very rarely seen at the present time. Paralysis of the Aran-Duchenne type, affecting the interossei and the thenar and hypothenar groups is unusual, as is the peroneal type of paralysis.

The blood picture of lead poisoning is that of a more or less severe secondary anemia, a hemoglobin ranging from 85% down, a red blood count diminished but seldom to less than 2,000,000 cells per cubic mm. Basophilic stippling of red blood cells, while observed in other forms of anemia than that due to lead poisoning, is an important finding, particularly when coupled with other evidences of lead absorption or poisoning.

Though a slight leucocytosis may exist in early cases, it is not strikingly evident during the course of most cases of lead poisoning. Certain writers attach much importance to a relative or absolute increase in the numbers of lymphocytes and large mononuclear cells. A slight eosinophilia is not uncommon.

Examination of the excreta of cases of lead poisoning may reveal the presence of lead in either the stool or urine or in both. In suspected cases it must be remembered that lead in the stool is not absolute evidence of lead absorption. Reports of a chemical examination should be regarded as authoritative only when the determinations have been made by a thoroughly competent chemist or technician, for it has been learned that many of the available analytical methods are not reliable when utilized for the determination of lead in organic mixtures such as urine and feces.

The continued excretion of lead is not adequate evidence of continued poisoning, neither is a negative chemical report adequate evidence of the absence of lead in body tissues.

In summarizing the more important elements in the recognition of lead poisoning there may be considered: a history of known or probable lead exposure, evidence of the presence of lead in the body such as a lead line or lead in the excreta, abdominal pain, constipation, anemia, stippling of red blood cells, joint and muscle pain, weakness, and partial or complete paralysis, usually of the extensor muscles of the forearms.

Unless far advanced the prognosis in cases of lead poisoning is excellent for improvement and very fair for recovery. Cases with advanced paresis seldom regain full function, those showing marked mental symptoms with persistent headache do not do well. The ordinary mild case with constipation, occasional colic and moderate muscular weakness, under proper treatment, recovers completely.

The fundamental treatment of lead poisoning so far as it is rational is based upon our limited

knowledge of the mechanism of the elimination of lead.

Active kidneys and bowels offer the best assurance of progressive improvement in most cases. A useful routine remedial agent is magnesium sulfate, used in small doses over many days, with occasional free intervals. Potassium iodide is considered of possible value but its worth is not proven. Electrolytic baths have been suggested but their effectiveness is questionable.

Severe colic may be relieved by morphine or by the use of amyl nitrite or nitroglycerine. Atropine is also recommended.

Iron is used in cases of marked anemia and various drugs for the palliative treatment of rheumatic pains.

Electrical treatment, massage and exercises are advocated for the restoration of seriously affected muscles.

Most of the lead poisoning which exists is preventable. Many of the trade processes which are hazardous because of the presence of lead could be rendered far less dangerous than they now are. Lead poisoning is not only a common ailment but the prolonged disability which it causes is productive of a lamentably great total of distress and economic waste.

While the safeguarding of trade processes is not a function of the medical profession, the recognition of disease assuredly is. Until physicians recognize in persons exposed to lead the evidences of lead absorption and of poisoning, the dangers of hazardous trade processes will not be appreciated. Only through the help of physicians can susceptible individuals be identified and removed from danger. Only with competent medical counsel can this most important of the industrial diseases be controlled.

DISCUSSION OF DR. WRIGHT'S PAPER.

DR. JOHN A. KEY, Boston: Dr. Wright has covered the industrial and clinical aspects of this condition, and at his suggestion I will confine my remarks to the pathological aspects. The literature on the pathology is voluminous, mostly in German, French and Italian, and mostly from the experimental standpoint, because lead poisoning, as Dr. Wright has said, is a disease which disables and does not kill, and autopsy reports are rather meagre. Just as the literature is voluminous, it is also varied: That is partly dependent on the manner in which lead was given, partly dependent on the time in which it was allowed to act, and partly dependent on the tissues in which each investigator was most interested.

In regard to the pathology of the intestinal colic, there is nothing definite known. Various writers have described degenerations in the coeliac ganglion and also in the plexuses of Meierbach and Meissner in the intestinal wall. Other investigators feel that the colic is due to the direct action of the lead on the smooth muscle, causing contraction. Clinical evidence that lead acts on smooth muscle is evidenced by the action of lead on the uterus and the fact that miscarriages and abortions are frequent in women who are exposed to lead.

The absorption is probably nearly always through the gastrointestinal tract. That is true just as much of lead workers exposed to dust as it is in men who are not exposed to dust. The possibility of absorp-

tion through the skin has been tested experimentally, and by rubbing large amounts of lead over the skin for periods of ten to 25 days in animals only very minute amounts of lead have been obtained upon analysis of the animals afterwards. The loss of weight is characteristic and early and often appears before any other symptom. It is in part due to loss of appetite, but it is believed that lead has some effect on the general nutrition. What that is, is not known.

Lead absorbed through the gastrointestinal tract is first brought to the liver, and its effect on the liver is evidenced by focal necroses. In chronic poisoning there is a fibrosis. This is not a true cirrhosis but is rather the necrosis of the parenchymal cells and the late replacement of this area by fibrous tissue. The nephritis is in the acute stage of the parenchymatous type; that is, Ophuls has described degenerations in the distal ends of the convoluted tubules. In the chronic cases it is an interstitial nephritis, and it is questionable whether it is not due to the effect on the blood-vessels, there being at the same time a thickening of the walls of the glomeruli. The arteriosclerosis is a common autopsy finding in men who have been exposed to lead over long periods, whether or not they had been clinically cases of lead poisoning. Experimentally I don't think it has ever been produced in animals. In the French literature there is some evidence of the production of arteriosclerosis, but the reports don't bear very close scrutiny and their explanation is that it is produced by a hypertrophy of the adrenals. However, the hypertrophy of the adrenals when found in lead poisoning is a hypertrophy of the cortex.

Paralysis is usually manifested in muscles which are used most; that is, a man who uses his thumb and finger muscles exceedingly is more apt to get thumb palsy or finger paralysis than he is to get a wrist-drop. In the muscles affected there is a secondary degeneration and atrophy. In the nerves there is typical Wallerian degeneration; and in the anterior columns of the cord there is a degeneration of the nerve cells. It is questionable which is primary and which is secondary, the peripheral or the central injury. In the encephalopathies autopsy reports show a pale brain which is usually somewhat shrunken. Microscopic sections have shown for the most part only infiltration around the blood-vessels. In a few cases there are reports of degeneration of the nerve elements. In regard to the muscular pains and the arthritis and neuritis, as far as I know, there are no pathological reports. As a whole, the pathology seems to be shown that lead may attack a wide variety of tissues and cause a parenchymatous change which is later followed by fibrosis. The blood changes are secondary anemia which progresses with the continued absorption of the lead. Usually well-defined lead poisoning is present before the blood count goes below three million, and the patient sees the doctor. It may go on to a severe anemia which resembles a primary anemia or it may go on to an aplastic stage. The hemoglobin index is less than one except in severe cases of anemia where it may be more than one. There is usually a mild leucocytosis which is usually more in the nature of a lymphocytosis, there being a relative and absolute increase of the lymphocytes and of the mononuclear elements. Some authors lay emphasis on the lymphocytosis and others on the mononuclear increase. In some cases the polymorphonuclears are absolutely increased. Apparently lead in the blood stream destroys the polymorphonuclear leucocytes and the red blood cells. Evidence of the destruction of the polymorphonuclear cells is seen in the numerous degenerative forms in the smear. Evidence of the destruction of the red cells is seen in poikilocytosis and in anisocytosis, and in sections of the bone marrow, spleen and lymph glands large numbers of fragmented red cells are found in the endothelial cells. The bone marrow is active.

I think the anemia isn't due to a depression of the bone marrow but due to a destruction of the red cells. The active regeneration in the bone marrow

is evidenced by a high reticulated red count or the presence of numerous polychromatophilic cells or stippled cells. If one compares the percentage count of the polychromatophilic cells and the stippled cells with the reticulated cells, the reticulated count is equal to the sum of the other two. That means from the reticulated count we cannot diagnose stippling because it is obscured by the vitally stained network. I regard the stippled cell as an abnormal young cell. It is a red cell in which small basophilic particles are present. These are quite different from the Howell-Jolly bodies which are derived from the nucleus. The basophilic particles are protoplasmic elements, and while they are not confined to lead poisoning, they are nearly always found if a careful search is made. They are also present in perniciosa anemia, pseudoleukemia and in almost every secondary anemia of toxic origin and in anemia following hemorrhage in which hemoglobin is retained in the organism. A number of authors state that stippling is uncommon in lead poisoning. These reports reflect on the ability of the man who looked for them. For instance, Schnitter in 1914 studied the blood from 283 cases and in 239 of these he found stippling, but in the last 88 cases in which his technique was improved he found stippling in 100 per cent. He and other writers in the German literature lay emphasis on the fact that in looking for stippling in the blood smear one should beware of a counter stain. They declare that in the Wright stain or in any other Romanowsky stain the eosin obscures the stippling. So they recommend a single stain of methylene blue.

THE TREATMENT OF RHEUMATIC FEVER.

By HOMER F. SWIFT, M.D., NEW YORK, N. Y.

[From the Hospital of the Rockefeller Institute for Medical Research, New York City.]

The treatment of a sick patient depends largely upon the physician's conception of his disease. This is especially true if treatment consists not merely in alleviating pain or other unpleasant symptoms, but is directed towards increasing the patient's power to master the malady. It is well to recall that in all general infections there is a constant struggle between patient and infectious agent, and that recovery is usually brought about by an increase in the defensive mechanism of the host, while a downward course is evidence of a failure of these defensive agencies to keep pace with the inroads of the parasite. At times the struggle between these two antagonists is quickly terminated; the outcome is soon known; either recovery or death closes the picture. We witness an acute disease. Another degree of intensity gives us a chronic infection; the host has not sufficient strength completely to subdue the parasite, but the constant cohabitation of the two contestants is of such a nature that the struggle is prolonged: on the one hand, the various defensive agencies of the body are slowly mobilized so that the parasite is either killed or rendered harmless by encapsulation; on the other hand, conditions may be slightly in favor of the infectious agent and there follows either a continual destruction or an abnormal overproduction of certain tissues of the host. In other instances the clinical picture shows successive periods of advantage

on one side and then on the other; the balance is often so fine that the slightest depressing influence upon the patient may permit the recrudescence of symptoms.

By suitable treatment the pathogenic properties of the virus may be kept at a level so low that ordinary diagnostic measures fail to detect its activity. It is entirely conceivable—even highly probable—that drugs or other parasitstatic agents may be sufficiently powerful to depress the virus to such a degree that it may be somnolent but not moribund; withdrawal of the drug may permit it again to resume its nefarious work. It is possible, moreover, that a drug may prevent the virus from acting on one organ or set of organs and still be powerless to suppress its activity elsewhere. Thus the clinical picture of the disease may be so altered that it is difficult or impossible to recognize it as a condition analogous to that presented by an untreated patient.

The consideration of latency of infectious agents is one that would require much time to discuss fully. It is a most important phase of many diseases. Because of an increase of the patient's natural defenses the virus may be encapsulated, but remain living and capable of resuming its pathogenic activity should the immuring tissue be destroyed or other inhibitory agencies be depressed as the result of another disease. Again it is well recognized that a microorganism such as the *Treponema pallidum* may lie latent in tissues for long periods without exerting any demonstrable local destructive action, or inciting the usual cellular response; then, as a result of a lowering of the patient's general resistance, or because of a local trauma, lesions characteristic of syphilis may be produced. Similar examples might be cited in other infections. As one studies his patients over years he is more and more impressed with the probability that recurrences in many diseases are due to renewed activity of infectious agents that have lain latent in the tissues for months or years.

The various possibilities just mentioned must all be carefully weighed in considering rheumatic fever, its complications and sequelae. Unfortunately, we do not know the specific etiologic agent. Our classification of the various conditions included under the term, rheumatic fever, rest therefore upon a study of symptoms and signs, upon the peculiar course of these manifestations, upon the response of some of them to certain drugs, and, finally, upon characteristic histopathological alterations in certain organs. It is possible that our conception of the nature of this disease may be entirely altered by new discoveries; on the other hand, if we may draw an analogy from the history of the study of syphilis, it is probable that the discovery of a definite etiologic agent or the demonstration of characteristic immune reactions would extend the picture rather than alter entirely the notions

already extant. Thus clinical study pursued with new methods as well as old will bring us nearer to a true picture of the relationship existing between the various manifestations in different cases.

In recent years an altered point of view towards this disease is reflected by the change in the name from acute inflammatory rheumatism, acute arthritis, or polyarthritides rheumatica, to rheumatic fever. It is evident that high fever, profuse perspiration, marked general intoxication and acute migratory polyarthritides responding to salicylates do not give us a complete picture of the disease; less obvious manifestations point to involvement of important viscera. For example, we now recognize that certain symptoms and signs, of themselves relatively insignificant, but important when considered in relationship to the general infection, indicate active disease in the heart. These are recurring fever and rapid pulse rate without renewed arthritis or evidence of complications in other organs; precordial pain and tenderness, and areas of paraesthesia in the so-called cardiac Head's zones; dyspnea and orthopnea in adults, and in children an increased respiratory rate unexplained by pneumonia or pleurisy; increased area of cardiac dullness; abnormal cardiac rhythms such as partial and complete heart block, auricular fibrillation, and tachycardia. Daily electrocardiographic studies of all of our rheumatic fever patients have convinced us that these symptoms and signs point to actual disease of the myocardium. Rarely is there instrumental evidence without accompanying clinical signs of cardiac abnormality. It is noteworthy that the majority of our patients minutely studied in the past three years show definite bedside and electrocardiographic evidence of myocardial involvement. If we add to this the long-known tendency for rheumatic fever patients to develop endocarditis and pericarditis, it is evident that most persons suffering from *polyarthritides rheumatica* also have *carditis rheumatica*.

In children and adolescents with rheumatic fever, arthritis is often so slight and transitory that it may be easily overlooked, and the entire picture be one of visceral involvement. Recently a child died in the Presbyterian Hospital with symptoms of acute heart failure. We were unable to obtain a history or other evidence of any of the usual rheumatic manifestations; microscopic examination revealed acute rheumatic myocarditis with many characteristic Aschoff bodies; no endocarditis or pericarditis. There is evidence, therefore, that the virus can attack the heart alone and allow all of the other organs to escape injury. Many children with chorea have no fever, or one only of low grade, and show clinical evidence of active cardiac disease; post-mortem examinations reveal histopathological evidence of rheumatic myocarditis and endocarditis. Others may have, in addition,

characteristic subcutaneous nodules, or there may be only nodules and endocarditis. Our present belief is that these various combinations of the rheumatic series (Cheadle) in childhood point to activity of the unknown virus in the body just as certainly as if there were a migratory polyarthritis. Other less distinct indications of probable continuing rheumatic infection during childhood are repeated attacks of tonsillitis, enlarged tonsils and satellite lymph nodes, growing pains, and certain cutaneous manifestations.

Failure to recover weight lost during the first weeks of illness or continuous loss of weight are presumptive evidence of persistence of infection. In recent years we have weighed all patients daily, and compared their weight charts with other signs and symptoms. Not only in children, but also in adults have we repeatedly observed that stationary weight below that usual for the patient is attended by slight fever, recurring arthritis or evidence of endocarditis; relapses have usually been heralded or accompanied by additional loss of weight or by a cessation of increase ordinarily evidenced by a recovering patient. A steady gain in weight does not necessarily mean that the patient will not suffer a relapse, but the liability is much less than in the presence of a subnormal, stationary, or falling weight. In this respect, rheumatic fever may be compared to tuberculosis. It has long been recognized that the acute stages with high fever and painful polyarthritis are attended by a rapidly developing anemia and emaciation. Clinicians who studied the disease before the introduction of salicylates describe the starved appearance of rheumatic fever patients who remained in the hospitals for months. Fortunately, the drugs at our disposal prevent most patients going into such a cachectic state; but the majority of them display a similar tendency which is masked unless we follow the weight curves. The loss of weight may be due to several causes: Du Bois and his co-workers have shown that fever *per se* increases the basal metabolism in a very definite manner. In severe infections the toxic state leads to a rapid destruction of body protein. A rough parallelism between the level of basal metabolism and the pulse rate has been demonstrated by several observers. Frequently the pulse of patients with rheumatic fever remains rapid after the fever has disappeared. In many instances this persistently high pulse rate is evidence of a continuation of myocarditis, and suggests that the virus is still active. Thus we may regard a high pulse rate as an indication for rest, and also for increasing the patient's food intake.

Leucocytosis is another important sign of continued infection. It has long been known that leucocytosis was a feature of this disease, and that invasion of new joints or organs was accompanied by an increase in the number of white blood cells: there are numerous observa-

tions that the number of leucocytes falls after the exhibition of sufficient salicylate to eliminate the arthritis and fever. Lately we have been making leucocyte counts of all our patients several times a week, and have been impressed by the fact that after the initial fall in leucocytes accompanying the administration of salicylates or neocinechophen, there is often a recurring leucocytosis which persists in spite of continuing the drug in sufficient doses to keep the temperature normal and the patient free from pain. In order to test the meaning of this sign, patients have been treated in different ways and the result noted.

Our studies now indicate that leucocytosis is an evidence of a persistent infection, and also confirm the opinion derived from other observations that the salicylates and neocinechophen do not completely destroy the virus, but suppress it sufficiently to relieve many of the characteristic symptoms of the disease.

This leads us directly to a consideration of salicylic acid with its numerous derivatives; later, compounds of phenylethchonic acid will be discussed.

From the clinical viewpoint probably no more striking therapeutic effect has been seen than that following the introduction of the salicylates for the treatment of acute articular rheumatism. The results were marvelous; intense suffering was relieved, and the distressing sequelae incident to continued high fever and prolonged intoxication were eliminated. The failure to elicit a similar response in patients with other conditions led to the opinion that salicylic acid was a specific for acute inflammatory rheumatism. The activity of synthetic chemists has resulted in numerous derivatives: drugs less irritating to the gastro-intestinal tract than the crude salicylic acid or sodium salicylate, but all dependent upon the salicyl ion for their specific action. Pharmacologists have shown that in common with many coal tar compounds, the salicylates have an antipyretic action due to increased heat elimination. They also are analgesics, they lessen pain in many conditions, both non-rheumatic and rheumatic. But the disappearance of the signs of the inflammation,—swelling, heat, redness, and tenderness,—so strikingly evident in the joints of rheumatic fever patients following the exhibition of large doses of salicylates, is not seen in patients with arthritis of known bacterial origin, nor in animals with experimental arthritis. The so-called specific action of the drug is, therefore, unexplained. This is not surprising when we realize that the etiology of rheumatic fever and the exact nature of the arthritis are unknown. Certain observers have claimed that the anti-phlogistic effects of salicylates demonstrated in the arthritis of patients with acute rheumatic fever are not specific. By means of special charts, whereon all of the symptoms and signs of inflammation in each joint are noted daily,

we have recorded in many cases the results following the administration of therapeutic doses of salicylates; many of the patients have been observed for varying periods before administering the drug; the evolution and resolution of the inflammation in each single joint and in all of the joints have been followed; repeatedly we have recorded the sudden disappearance of inflammation in recently invaded joints and as striking a cessation of the tendency for new joints to be involved. At the same time we have failed to observe a similar antiphlogistic effect in patients with gonorrheal rheumatism, or arthritis due to other bacteria; patients with serum disease arthritis, likewise, have not been relieved by large amounts of salicylates. These observations are not unique, nevertheless they are of distinct value because made with a definite point of view: to prove the specific antiphlogistic action of salicylates upon the arthritis of rheumatic fever patients.

The therapeutic and toxic doses of salicylates approximate one another. Failure to recognize this fact often results in failure to allay pain. Frequently we have admitted patients who have been taking 0.6 to 1.0 gram (10 to 15 grains) doses of sodium salicylates or aspirin three or four times daily with only partial or no alleviation of their symptoms; subsequent rapid administration of the same drug to a point just below toxicity has afforded complete relief.

The physician should be thoroughly familiar with the symptoms and signs of toxicity: tinnitus aureum, deafness, nausea, vomiting, flashes of light; in extreme instances, delirium; injury to the kidney resulting in hematuria and diminished renal function are occasionally seen if the drug is given too freely. Hanzlik and his co-workers have laid special emphasis upon renal poisoning, and claimed that many of their patients had a temporary gain in weight after receiving amounts of sodium salicylate sufficient to relieve their arthritis and fever. We have repeated these experiments but failed to observe such marked evidence of renal injury, either in the form of severe albuminuria, cylindruria, hematuria, or evidence of an accumulation of edematous fluid in the patient's subcutaneous tissue. Gain in weight in practically all instances could be explained upon the basis of replacement of water previously lost by excessive diaphoresis. Rarely, when salicylates have been given in large amounts, we have seen edema of the extremities and a sudden increase in weight; but in such cases it was subsequently evident that too much had been administered. Our rule is to prescribe the drugs in 1 to 1.5 gram (15 to 22 grains) doses every hour until pain is alleviated or the first toxic symptoms appear—usually tinnitus or nausea; ordinarily from 6 to 12 grams (90 to 180 grains) are sufficient. The drug is then discontinued until the following day when a total amount of from one-half to three-fourths of the toxic dose is ordered.

Depending upon the severity of the case and the therapeutic results the drug is continued in this quantity for longer or shorter periods, and subsequently the daily total is slowly reduced. We have found that an hourly chart on which are noted the therapeutic and toxic effects of the drug for the first two days, and a daily chart on which the joint symptoms, temperature, and pulse rate are recorded have been of great value in helping us determine the correct dosage for each patient.

Individualizing in the administration of salicylates to rheumatic fever patients is most important. No absolute rule can be given except that of studying each patient during each course of treatment. We have seen the toxic dose vary between 6 and 10 grams for the same individual at different times. An even wider range is seen in different individuals. Men, as a rule, tolerate larger doses than women. The body weight of the patient probably bears some relation to the toxic and therapeutic dose.

The beneficial effect of practically all of the numerous derivatives of salicylic acid is more or less proportional to the salicyl ion content. Improvements in forms of the drug concern themselves mainly with compounds that are less irritating to the gastro-intestinal tract. Crude salicylic acid is most irritating and practically never given; sodium salicylate is less irritating but often is repulsive because of its peculiar taste. Acetylsalicylic acid having a sour taste is often better tolerated. The list of salicyl derivatives is too long to describe in detail, and is probably much larger than necessary. Numerous preparations have been introduced to the profession by enterprising drug manufacturers with glowing testimonials. Had physicians been well acquainted with the technique of using sodium salicylate and acetylsalicylic acid properly they would rarely have been compelled to resort to more unusual and expensive derivatives of salicylic acid in the treatment of patients suffering from rheumatic fever. There is no doubt that certain patients can tolerate therapeutic doses of acetylsalicylic acid when they cannot bear sodium salicylate; the reverse is also true. Cases are also seen where other derivatives appear to be better tolerated; but often it will be found that the apparent diminution in toxicity is due to a lower salicyl content of the preparation in question; and the therapeutic effect is proportionally less.

Attention has already been drawn to certain actions of the salicylates. It is important to realize that we do not know the real reason for the so-called specific effect, although there has been much speculation and some experimentation on this subject. Hanzlik and his co-workers have shown that the salicyl ion does not exist in any greater concentration in the joint fluid than in other tissues, and also that it probably does not exist as free salicylic acid in arthritic exudates. Boots and Cullen have found that the

reaction of joint exudates from patients with rheumatic fever is always alkaline, so that free salicylic acid cannot exist in these exudates even though large amounts of salicylic salts were present. The anti-arthritis effect cannot, therefore, be due to free salicylic acid.

Some experiments of mine indicate that during immunization animals receiving sodium salicylate in doses comparable to the largest therapeutic doses for patients produce somewhat smaller amounts of immune bodies than do controls similarly immunized but not receiving salicylates. This suggests that possibly this drug acts by depressing the susceptibility of the animal to the antigenic stimulus of the foreign protein—both bacterial and non-bacterial. In another series of experiments by Boots and myself, salicyl treated rabbits with experimental arthritis induced by intravenous inoculation of green streptococci had fewer purulent joints than did a corresponding number of non-salicylated controls. Both groups of animals had a similar number of inflamed joints; the smaller amount of purulent arthritis among the salicyl treated animals suggests that in some instances, at least, the drug decreased the irritating power of the bacteria in joints even though the joints were infected. This suggests that the action of salicyl in the animal body may be bacteriastatic even if it is not actually bactericidal.

Such an action corresponds with the observed effect in patients with rheumatic fever. The persistent leucocytosis, the continuation of signs of myocarditis, the development of endocarditis and pericarditis in patients under the influence of salicylates, and the liability for many patients to have relapses when the drug is reduced too rapidly or discontinued too soon, all indicate that its chief action is to reduce the intensity of the pathologic process rather than to destroy completely the virus. It seems to us that this reduction in intensity of the disease relieves pain, spares the patient, and permits a more rapid convalescence.

Such effects might lead to harmful therapy if not well understood and considered in the general management of the patient. Relieving certain distressing symptoms and lessening others so that the patient feels almost well may lull both the sick man and physician into a false sense of security. Very frequently I have seen patients who, while taking 2 to 5 grams (30 to 75 grains) of sodium salicylate or aspirin daily have been discharged from a hospital, and after a few days at home without the drug have developed relapses of varying intensity. According to our present opinion such patients were suffering the entire time from the disease, but were unconscious of its ravages; they were, therefore, subjecting themselves to stress and strain beyond a proper point, and losing the benefit of the time already spent in the hospital, and increasing their liability to serious visceral complications. Under such circumstances it is

questionable whether the administration of drugs may not do more harm than good. This statement is not an indictment of anti-rheumatic remedies but rather a common method of using them.

Recently phenyleinchoninic acid and its derivatives have been introduced for the treatment of rheumatism.* Derivatives of quinolene, they were first used for the treatment of gout. Although unrelated, both salicylic acid and phenyleinchoninic acid have been found to increase the permeability of the kidneys for several non-protein nitrogen waste products; both are antipyretics, and both decrease the signs of inflammation in the joints of rheumatic fever patients. We have found that einchophen and neoeinchophen act against the signs and symptoms of rheumatic fever in much the same manner as do the salicylates. Cinchophen is liable to induce severe gastric distress in patients taking enough to relieve their arthritis and pyrexia. Neoeinchophen, on the other hand, has been free from this unpleasant by-effect, and has been given in daily total doses of from 0.1 to 0.15 of a gram per kilo body weight without severe demonstrable toxicity. All of the remarks already made in reference to the therapeutic action of the salicylates can be applied to drugs of the cinchophen series: they combat certain unpleasant symptoms, but clinically do not seem to destroy the virus completely, as many patients have continued to have a leucocytosis while under their influence and others have developed relapses upon discontinuing the drug. Similar to our experience with both sodium salicylate and aspirin, we have occasionally seen patients continue to develop new symptoms and signs while taking therapeutic quantities of neoeinchophen, and experience marked relief when another anti-rheumatic remedy was substituted. Neoeinchophen is a useful adjunct to our therapeutic armamentarium, but up to the present has not been proven a substitute for the salicylates. Each drug at times is useful in replacing the other, when the one first tried is either too toxic or fails to induce the proper therapeutic effect.

No satisfactory serum has been devised for the treatment of patients with acute rheumatic fever. This is not surprising in view of our ignorance of an etiologic agent with which to immunize animals. It now seems probable that the favorable results from anti-streptococcus serum injections reported several years ago were similar to the recoveries seen following the injection of other forms of foreign protein.

Patients with all types of arthritis have been treated by intravenous or intramuscular injection of killed bacteria, various colloidal substances, or other foreign proteins in various forms. Typhoid vaccine seems to have been employed more than other foreign proteins. In

*Atophan was the name first used, but during the war the term cinchophen was adopted. Similarly, neoeinchophen was changed to neoeinchophen. Another trade name is tolysin.

order to obtain satisfactory clinical results it is necessary to induce a severe chill, followed by fever, symptoms of marked general intoxication and to stimulate a high degree of leucocytosis. Similar treatment has been employed in most general and local infections as well as in the treatment of arthritis. It is now recognized that there is nothing specific in this form of therapy; that when improvement follows it appears to be due to a sudden mobilization of leucocytes, and possibly other defensive agencies. Many observers who claim the most favorable results from intravenous injections of bacterial vaccines into rheumatic fever patients report only an improvement or disappearance of the arthritis, and an antipyretic effect; they do not mention whether the other symptoms of the disease disappear or not. All agree that the toxic reaction is too severe to warrant the general introduction of this form of therapy, and advise that it be reserved for those patients who do not respond favorably to the salicylates. We have not attempted to repeat the observations of others because we felt that because of the non-specific nature of the reaction it would not help greatly in the elucidation of our problem of the nature of rheumatic fever, especially when such marked benefit can be obtained from drugs.

No discussion of treatment would be complete without mentioning the question of tonsillectomy or the removal of other foci of infection. There can be little doubt that there is a relationship between tonsillitis and rheumatic fever; the exact nature of that relationship is another question, and one we shall not take up at this time. The proper removal of diseased tonsils is often followed by marked improvement in patients who are suffering from chronic forms of this disease. Even from the most conservative point of view, in which it might be claimed that tonsillitis is not "rheumatic" in nature, it would seem advisable to remove simple diseased tonsils, or tonsils that were the point of origin of other general infections. Even more, then, would one advise tonsillectomy if he believes that diseased tonsils are directly responsible for an attack of rheumatism. It is, however, well to bear in mind that many relapses occur in individuals who have had their tonsils well removed, and to warn patients of this possibility in advising operation.

Summary: Within the limits of this paper it has been impossible to consider the treatment of the various important complications of rheumatic fever, or to give specific directions for the use of the remedies discussed. An attempt has been made rather to summarize our present conception of the disease as an infection lasting longer than is ordinarily believed, to show that only certain of the well-recognized symptoms yield readily to anti-rheumatic drugs, and that these drugs often simply depress or mask the activity of the virus. In general, it is important to recognize what our remedies fail to do as well

as what they do. Proper treatment consists not only in administering anti-rheumatic drugs, injecting foreign protein, or removing possible points of focal infection, but also in prescribing rest, guarding the heart against over-strain, regulating exercise, attending to the diet, and in devising measures to increase the patient's general resistance against infection.

DISCUSSION OF DR. SWIFT'S PAPER.

DR. ROGER I. LEE, Cambridge: I think we will all agree that we have had a splendid paper that has given us an adequate résumé of the treatment of rheumatic fever. What Dr. Swift didn't say—he was too modest to say—was that many of his statements are completely backed by his own experimental work in the laboratory. Dr. Swift is combining his clinical studies with his laboratory studies, and it is a piece of work that represents the best that there is in internal medicine. To some of us it is particularly gratifying to find that his carefully made conclusions agree with our own less carefully made conclusions at the bedside. For example, it has always been a pet phrase of mine that there was no specific in rheumatic fever, that salicylates weren't a specific, but that rest and salicylates properly given came near being a specific in rheumatic fever; and I think that Dr. Swift has come to practically the same conclusion. We are dealing with a self-limited disease, although its self-limitation isn't so sharp as in the infectious diseases. We have the asset of self-limitation, we have the asset of salicylates and we have the asset of rest; and these three assets give us in a measure a control over the disease.

I liked Dr. Swift's insistence on the point that after you have apparently aborted the disease, you were still on very dangerous grounds, and I would like to emphasize, as he has emphasized the salicylates, the importance of rest in preventing relapses. It has been our experience in the hospital that patients who have come in after taking the salicylates up to the toxic dosage without much benefit are often promptly relieved under hospital conditions, where rest can be made nearly absolute.

I was also glad to find that Dr. Swift in his studies had difficulties with the obstinate case. That agrees with our phraseology of "almost a specific," because there are cases that are obstinate under the best of treatment, and those cases do not seem to give way to any form of therapy. However, a properly applied therapy will minimize those, and we only have the inevitable case that occurs in every infection.

A MEMBER (Lady): I would like to ask Dr. Swift what he does when sodium salicylate produces nausea.

DR. SWIFT: We have regarded nausea following large doses of salicylates as central in origin. Some patients, on the other hand, find sodium salicylate repulsive because of the sweetish taste; in such cases, switching to aspirin is of benefit. Occasionally a patient is seen who cannot take more than ten to twenty grains of either drug without nausea, or other toxic symptoms; in such cases neo-cinchophen is most useful.

A MEMBER: Do you employ salicylic therapy when there is endocarditis, without joint symptoms?

DR. SWIFT: If there is simply a low-grade fever we do not; but if the fever is sufficient to depress the patient we use salicylates; if he is helped, the drug is continued; if not, it is stopped.

DR. F. S. DE LAE, Boston: I would like to ask Dr. Swift what the condition is of an individual who has rheumatism, recovers without drugs and on taking that again which was thought to be the cause of the

rheumatism, the rheumatism lights up, again—whether the rheumatism was lighted up by improper eating; whether the food was the entire cause; and whether the individual on shutting off his salicylates and returning to his home did not produce rheumatism by the first cause. I presume you consider every case of rheumatism infectious?

DR. SWIFT: That is my conception of the disease. This conception of the disease is open to alteration at any time sufficient positive proof is presented: I do not regard complete positive proof, however, as arising from a single case, but from a series, because the infection produces so many variations: from a three day disease to one lasting three years. The citation of any one individual to prove a point is hardly scientific; there should be enough cases to prove the contention.

DR. DE LUE: Another question, about growing pains in rheumatic children—that it isn't necessary to have any fever. Would you consider the ordinary stiff neck, without fever as rheumatism?

DR. SWIFT: No, unless they had rheumatic fever before. I have, however, seen patients with other signs of activity of rheumatism, without fever.

DR. DE LUE: You may have rheumatic hearts without fever?

DR. SWIFT: Yes.

A MEMBER: Dr. St. Lawrence regards a level of 99.4 F. as normal; if it is below this point he regards the patient as afebrile and ready for discharge; what is Dr. Swift's practice?

DR. SWIFT: We consider 99.6 F. rectal temperature, as normal, as we have found that mouth temperatures are unreliable, especially if the patient has a weakened myocardium.

A MEMBER: Dr. Swift touched on the matter of tonsillectomy. I would like to ask if he takes out the tonsils routinely and if he does not, what are the criteria for removal of the tonsils?

DR. SWIFT: We do take out the tonsils routinely, because it seems to be the accepted practice. Some patients refuse operation and hence serve as controls. But we explain to all patients that tonsillectomy is only a part of the general treatment and that there is a possibility of relapse.

DR. E. H. PLACE, Boston: I would like to know if Dr. Swift takes out the tonsils during an active endocarditis and if so, whether there has been any unfavorable reaction; and whether there has been any lighting up shortly after the operation?

DR. SWIFT: I am glad that question has been brought up, because of our experience with relapses following tonsillectomy; although at present unable to give exact figures, I should judge that somewhere between 20 and 35 per cent. of our patients had shown signs of arthritis shortly after tonsillectomy and adenoidectomy. To evaluate this evidence properly, a similar series of patients should have undergone some other operation, in order to see if it is not merely the depression of operation that has brought about the relapses. Most of our patients have lost from three to nine pounds following tonsillectomy; this loss has occurred in spite of special effort on the part of our nurses to keep up a high caloric diet. I am of the opinion that a comparable loss of weight from any other cause would be followed by a certain number of relapses. In other words, many of our patients at the time of operation were harboring the virus, and the operation was the depressing factor that allowed it to become active.

A MEMBER: I would like to have Dr. Swift answer

Dr. Place's question whether he operates during acute symptoms.

DR. SWIFT: No; we have not; in view of the experience just cited we have felt it better to wait until the signs of activity had disappeared and the lost weight recovered. In this manner we hoped that the depressing influence of the operation would be less deleterious.

Original Article.

THE STING OF THE SEA-NETTLE.

By DOUGLAS H. STEWART, M.D., F.A.C.S., NEW YORK.

UPON page 158 of Wells' Chemical Pathology will be found the following sentence, "Many coelenterates produce active poisons, which have a paralyzing and a local irritant effect." It is to one of those coelenterates, named the sea-nettle, that attention is here called; because at the present time all the animals of the jelly-fish tribe are unusually abundant off the neighboring coasts (July, 1922). For reasons that we might describe as diplomatic the effects of the stings of the sea-nettle are Bonifacially classed in the "Ivy Poisoning" group, although in many instances the plants that produce such "poisoning" may not be within miles of the sufferer. Then, too, the pathological results and the clinical appearances of a "Dermatitis Venenata" differ materially according to a plant origin or that from the sting of a marine animal. Yet at the same time there are sufficient common manifestations to deceive the hasty and inattentive observer in his differentiation.

Information pointing to some sort of sting, experienced by some one who was bathing in salt water at the time, will suffice as an item with which to start a clear medical history.

Unfortunately for accuracy a child-victim will state that he has hurt his knee (for instance) when he has neither knowledge nor evidence of blow, contusion or fall; though he is endeavoring to say in his own way that something happened, so that his knee does not feel nor work as it should. Since the aforesaid was written the writer's attention has been called to two cases of adults who were stung while swimming under water. One was slashed across the mouth and chin and his rash would have been taken for a very severe and extensive grade of herpes febrilis. The other patient was slashed across both cheeks and nose and across the shoulders and back, with a rather prevailing erysipelatoid appearance to the wounds.

It would appear probable that the location of the sting mark depends upon the position of the victim's body when he is stung, *i.e.* whether he is standing, sitting, wading, swimming, diving, etc. All that is emphasized in this place is that granted a good contact with the tendrils of a healthy sea-nettle and the animal

may be relied upon to attend to the business of stinging. The poison of the *Rhus* is a glucoside or toxicoendriac acid, while the poison of the sea-nettle is akin to, or identical with, formic acid, though mixed with other substances. The *Dermatitis Venenata* of the *Rhus* presents redness, swelling and sometimes a diffuse edema; while the *Dermatitis Venenata* of the sea-nettle's sting produces a condition that might be considered to resemble a dermatocellulitis. It is, however, really an edema the edges of which are as clearly drawn as though marked out by a pencil. Or those edges are as well defined, to the observer's sense of touch, as are the margins of a piece of slate. Blistering, herpes, etc., are seen in either or both forms of *Dermatitis*.

The marks that the stings leave upon the skin of the victim are often found upon the outside of the lower extremity where they run or trend more or less vertically from the middle of the leg to the middle of the thigh. This is theoretically accounted for by the animal's body coming in contact with the upright body of its victim and, since the stinging tendrils hang more or less directly downward in the water, they come into good contact with the outside of the victim's leg. On the contrary should the animal's body be pushed aside by the hand as in the motion of swimming, or should that body come into contact with more or less protuberant or projecting abdomen or hips then the tendrils will swing free without contact, and no sting ensues. When stings are scored upon the arms or face the actual contact areas are often small; hence the amount of damage is limited, or trivial and is prone to be herpetiform in character. When, however, the contact-area runs from ankle to hip, then the irritative result that is provoked is very evident to all concerned.

The writer's observations lead him to think that the long, broad mark often found upon the leg is the result of contact with two or three tendrils; while an arm, for instance, might come into contact with but a portion of a single tendril. Therefore the mark found upon such an arm may resemble a welt, wheal, urticaria or herpes of small circumscribed extent; while a similar mark upon the leg is a more or less perfect rectangle, one or two inches in width and from six to eight inches in length. Upon one occasion several physicians were asked to furnish an appropriate description of the appearance left after a severe sting. The opinion was that it most closely resembled a commencing cellulitis (pulse and temp. normal). After two days the resemblance was lost, as the skin became dark brown in color and the corneous layer was destroyed quite as though there had been a second degree burn or a scald with a blister.

Children appear to suffer the most from after-effects possibly because of tender skins and because the poisonous dose is large in proportion

to body-weight. If lameness be manifested it will not amount to more than the difficulty in walking that follows ordinary contusion, for it has nothing to do with the actual condition of the articulation itself. The severity of result depends upon the condition of the victim and of the sea-nettle. A well tanned, thick, weather-beaten skin furnishes a high resistance; and temperature of water and the usual laws, that apply to greater or less activity of venoms in general, probably have their effect on the animal's efficiency.

The most commonly employed (and perhaps the least valuable) applications to a formic acid sting are the Tincture of Iodine and ordinary Alum Acetate solution. The most popular, most efficient and perhaps the most dangerous in its possibilities is a plastering of clay mud. Nothing better fills all the therapeutic indications than a compress kept constantly moistened with a two per cent. solution of Bicarbonate of Soda. A two per cent. solution of Phenol may be painted on for its analgesic effect, may be allowed to dry uncovered and then the Sod. Bicarb. compress may be employed over all, without fear of producing the well-known carbolic gangrene. In short, the attendant will do no damage if he bears in mind that the main object in this instance is to neutralize an acid with a non-irritating alkali (lime water, milk of magnesia, etc.). Perhaps the writer insists rather strongly on this because a personal experience with strong formic acid leads him to think that it would be difficult to imagine anything more painful in application, more irritating in its local effect, or producing a more intractable form of ulceration.

All sorts of legends of the "Once upon a time" variety are current along the beaches and refer to some vigorous swimmer being incapacitated and drowned, sinking to the bottom at once as the result of being paralyzed by the sting of a powerful sea-nettle. Whether there is the slightest truth in any such rumor is an open question. The writer's own experience would tend to show that in a tide run or among waves the position of a swimmer's body is such that the hanging stinging tendrils of the animal hang below the swimmer and are not so very apt to come in contact, whatever the two bodies may do, and at the same time the movement of the water itself would carry the swimmer and the animal apart in a very short interval of time. On the other hand where or when the water was sluggish with slow current (or none) as in pools, eddys, salt-marshes, etc., the chances for prolonged contact and marked sting-results are greater. It may be that just because children play in such quiet waters that they seem to be the most usual victims.

It should not be forgotten that the poison of the sea-nettle is a paralyzer in one sphere of its action. The paralyzing effect is always there;

but as to there being any real danger to a child or adult all the writer can say is there is a lot of truth in a maxim of Arago's which states: "Aside from the realm of pure mathematics he who uses the word 'Impossible' lacks prudence." That the sea-nettle can sting is easily proved, the only question unanswered is the extent of the damage of which the animal is capable under circumstances that are favorable to the stinger.

In conclusion it might be well to mention that if an observer will but pass his hand beneath some floating jelly-fish he will be able to select from among the number those that sting and those that do not sting. Practically, a screen of so-called chicken wire, even though it be attached to floats by its upper margin and have a couple of feet or so submerged, will form a barrier against the entrance of jelly-fish to any given enclosure of water, that may be used for the amusement of children.

Book Reviews.

A Manual of Diseases of the Stomach. By WILLIAM MACLENNAN, M.B., Honorary Consulting Physician, Western Infirmary, Glasgow, etc.; with the assistance of J. SALISBURY CRANIG, M.B., Ch.B. London: Edward Arnold. 1921. First edition. New York: Longmans, Green & Co. 380 pages, with many illustrations. Price, \$7.50.

This author has aimed at a book midway between the small manual type and the large, pretentious work adapted chiefly to the specialist. On the whole he has succeeded pretty well in turning out a useful, comprehensive and well-arranged volume covering pretty much the field of gastro-intestinal disease.

The work is divided into four distinct sections, the first covering anatomy, physiology and chemistry, with clinical and laboratory methods; the second, organic disease of the stomach; the third, functional disease, and the fourth, stomach symptoms in relation to disease of other organs, with a glossary of chemical and clinical tests.

It is inevitable in a book of these pretensions that in the mind of any reviewer certain parts should be unduly elaborated at the expense of others, and here 33 pages on test meals as against approximately the same number of pages on a subject as important as gastric ulcer seems a little out of balance. Furthermore, a modern book without reference to the Sippy method of management in peptic ulcer is a bit unusual.

The real recommendation for the book lies in the fact that it contains in compact form between two covers a collection of generally sound, well-arranged information covering the field of gastro-enterology. The therapeutic side is tolerably well done, and prescriptions and diet lists are well elaborated.

This should prove a useful book for students and a convenient reference to practitioners.

Manual of Physio-Therapeutics, by Thomas Davey Luke, M.D., F.R.C.S., Ed. Formerly Physician, Peebles Hydropathic, Peebles, N. B., Assistant Physician, Smedley's Hydropathic, Matlock; Sometime Lecturer at the Edinburgh University: Author of "Spas and British Health Resorts," etc., etc. With many illustrations. New and revised edition.

"Would you have us place reliance
Less in drugs and pseudo science?
More in Nature; for our ills
Using sense and fewer pills:
No—the change were all too tragic,
Most folks like being healed by magic."—*Anon.*

New York: William Wood and Company, 1922.

Mr. Luke's "Manual of Physio-Therapeutics" is exactly what its name implies, including under the term "A Section on Diet in the Treatment of Disease," Thermo-therapy, Hydro-therapy, Masso-therapy, The Rest Cure, Electro-therapeutics and Diet-therapy are separately discussed in sections. The book is profusely illustrated and very readable, with frequent touches of quaint humor. The author discloses a very wide experience with the technical details of Physio-therapeutic methods employed in the European Spas, especially those of Great Britain. The description of apparatus and the technique of application will prove of great practical usefulness to the Physio-therapist. That he is a firm believer in the value of these is evident. The knowledge and review of contributory literature is extensive.

The book may be unconvincing to the pure scientist, and seem to the general practitioner perhaps too optimistic as to the great benefit to be expected in a wide variety of serious ailments, but the precautions and contra-indications are so clearly stated that no harm is likely to result.

The experience of the War has strongly suggested that a scientific application of these methods will probably result in an earlier return of function and in an alleviation of suffering in many types of disease and lesions.

We commend the book to the student or practitioner of physio-therapeutics. The general practitioner is likely to have his interest in this subject definitely stimulated.

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THE LETTER OF HENRY D. NUNN, ESQ. MANAGER AND GENERAL COUNSEL OF THE MEDICAL LIBERTY LEAGUE.

THE JOURNAL is ready to give space to a courteous letter, but we feel that the explanation appearing in another column does not explain the charge that "most physicians take vaccination purely on faith" as the term is commonly used. If the critic will state that most physicians have a firm belief in the doctrine that vaccination by cow pox virus, so called, prevents and modifies smallpox the JOURNAL will agree with him, but if he uses the Bible definition of faith as "the substance of things hoped for, the evidence of things not seen," we shall continue to feel that the position and standing of the profession is not properly portrayed. Faith founded on study, observation and reliable testimony is the foundation of the practice of medicine. We do not speak slurringly of the decision of a court because the testimony presented in a trial deals with the statement of facts and opinions of those testifying, and no one should assume that physicians base attitude and procedure on general unsupported statements.

It is, of course, true that a medical student accepts the teaching of his professors but with the reservation of the right to form his own opinions after having acquired maturity of judgment founded on experience. Any assertion that tends to convey the idea that he continues to

have blind adherence to the teaching of his student days does not apply to the great mass of practitioners. Almost immediately upon entering practice he puts his instruction to test and accepts or rejects the doctrines taught, in accordance with experience and testimony. The great majority of medical students of today have trained minds and are eagerly searching for demonstrated truths. Medicine is becoming more scientific with startling rapidity and the inelastic and provincial minds of some practitioners of a generation ago are being rapidly eliminated. The younger practitioner must of necessity satisfy himself of the truth or falsity of the statements previously made and if he does not come in contact with smallpox, he finds that every epidemic of this disease spreads unless checked by vaccination. He finds that every up-to-date board of health and health officer having been in contact with smallpox emerges from the conflict endorsing vaccination. If he personally has the opportunity of seeing smallpox cases he finds that the teaching of believers in vaccination is sustained by his experience.

Skepticism of the merits of vaccination should be generally resented by the medical profession for the profession as a body believes in vaccination and physicians do not relish the implication that an accepted belief is false nor the many other statements which have been made from time to time imputing selfish motives and alleging the disproportionate dangers of vaccination. The illustration of the contention of the correspondent based on the attitude of the "erstwhile president of a medical association" is not apt, for although this surgeon had early in life formed an opinion it is evident that he had found no occasion for changing that opinion. Why should he keep informed of the technical details of the production of vaccine? He uses antiseptic and sterile material in his work but he may be very much like many other surgeons who find no occasion to burden their minds with details of manufacture of these products. If he should find an abnormal percentage of sepsis among his cases he would find out the reason. Any physician who found smallpox as prevalent among the vaccinated as the unvaccinated would carefully study all factors involved and would confer with his associates with the purpose of finding the truth, i.e., if his experience led him to feel that the claims made of the efficacy of vaccination are false he would readjust his attitude.

The protective power of vaccination is demonstrable, we believe. If our friends of the opposition wish to make an effective study of the problem let them take one-hundred unvaccinated children and place them in contact with smallpox cases and, for control, subject one-hundred other children who have been successfully vaccinated to the same association. This matter can be dealt with in a way to convince any fair-minded person.

Recently some objectors to compulsory vaccination have simply argued that all that they wish is abolishment of the *compulsory* feature of the law, but men with the same object in view are apt to be found associated and these less vigorous opponents of vaccination are found to be associated with those who earlier wanted to do away with vaccination altogether, and who talked about the spread of syphilis and the maimed and dead children following vaccination. If there are so many physicians who, if "candid," would admit having given no thought to the question of vaccination as claimed by the correspondent then there is a fertile field for the antivaccinationists to cultivate. We earnestly urge that this alleged great proportion of the medical profession be interviewed. It would be interesting to have them tabulated so that both proponents and opponents might know the approximate number of physicians who have no convictions on this subject.

The medical profession is under a solemn obligation to protect those in danger of disease who cannot protect themselves. If it was not for this duty the profession might be excused if the unpleasant features of controversy were abandoned. We are very like an army bearing suzerainty to a threatened city; so far as we have ability, adherence to duty is demanded in the name of humanity.

No convincing arguments have yet been advanced which would justify retreat.

A FEATURE OF THE HARRISON NARCOTIC ACT.

In a decision of the Supreme Court written by Chief Justice Taft in denying a writ of error based on the charge that the indictment failed to charge that certain defendants sold inhibited drugs knowing them to be such, the court reversed the judgment of a lower court. The explanation is given that the statute does not make such knowledge an element of the defense. "Again where one deals with others and his mere negligence may be dangerous to them as in selling diseased food or poison the policy of the law may, in order to stimulate proper care, require the punishment of the negligent person though he be ignorant of the noxious character of what he sells."

In the opinion it is further stated, "The Narcotic Act has been held by this Court to be a taxing act with the incidental purpose of minimizing the spread of addiction."

This last exposition of the law sustains the interpretation which physicians have made. We are *taxed* for the right to use therapeutic agents. Because others make improper use of these agents is no valid reason why the Government, in all fairness, should impose a tax for revenue. All right minded physicians endorse all proper

methods designed to do away with the evils of drug addiction but when the Government taxes physicians engaged in ethical practice for the purpose of providing it with funds for protecting the people from harmful drugs it might go much further and levy a special tax on the surgeons' knives because some persons use knives in taking life. The registration of physicians with the right conferred to use narcotic drugs is logical, but the revenue tax is abhorrent and should be repealed. Doctors have contributed inestimable services to the nation and individuals and about all the public reward bestowed is exemption from jury duty. The degree of ability and industry exhibited by physicians, if applied in other walks of life, would average larger returns than those enjoyed by physicians and yet we must be taxed. Lawyers are not taxed to create a revenue which could be applied to controlling the shyster or any other class of criminals, but doctors are complacent and submit to exactions which are unjust.

As laws are enacted in the future the attitude and activity of the newly created legislative body of the A. M. A., will be watched with interest. We have not been able, as individuals, to protect ourselves. Will our representatives be more efficient?

NEWS ITEMS.

PROF. HARVEY CUSHING'S VISIT.—Prof. Harvey W. Cushing, who delivered the Cavendish lecture on Meningiomas last Tuesday evening before the West London Medico-Chirurgical Society, returned to America the next day, after acting for a fortnight as Director of the Surgical Unit at St. Bartholomew's Hospital. Some years ago when the Peter Bent Brigham Hospital at Boston, Mass., was founded in association with Harvard University, arrangements were made for exchange of visits by distinguished foreign surgeons, the visiting surgeon to be temporary surgeon-in-chief in place of Prof. Cushing for some period in each year. Prof. G. E. Gask deputised at Harvard in the spring of 1921, and Sir Cuthbert Wallace has just returned from filling a similar office. Although recognized as the leading neurological surgeon in the world, Prof. Cushing did not operate while he was in this country, but spent his time in observing methods of instruction, talking to students, and teaching in the out-patient and casualty departments of the hospital. His association with British surgeons during the war and the knowledge then acquired of the ways and manners of British sick and wounded made it possible for him to enter at once fully into the life of an English hospital. Our own surgeons envied Harvard its abundance of surgical assistants and its organization of type-

writing clerks and dictaphones to mitigate the labors of record keeping. It would be interesting to know what impression the great American surgeon formed from his intimate visit here. At all events, he has left a pleasant impression behind him.—*The Lancet*, 17th June, 1922.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Aug. 19, 1922, the number of deaths reported was 196, against 194 last year, with a rate of 13.38. There were 40 deaths under one year of age, against 32 last year.

The number of cases of principal reportable diseases were: diphtheria, 66; scarlet fever, 12; measles, 24; whooping cough, 29; typhoid fever, 4; tuberculosis, 31.

Included in the above, were the following cases of non-residents: diphtheria, 4; scarlet fever, 4; typhoid fever, 1; tuberculosis, 9.

Total deaths from these diseases were: diphtheria, 5; scarlet fever, 1; measles, 2; whooping cough, 2; tuberculosis, 13.

Included in the above, were the following cases of non-residents: diphtheria, 1; tuberculosis, 1.

THE HEALTH ACTIVITIES OF THE UNITED STATES BUREAU OF MINES.—This report outlines the history and development of the Bureau, its legal authority, organization, personnel, appropriations and cooperation with other agencies. The report is the ninth in a series concerning those activities of the U. S. Government which deal directly or indirectly with the public health. The previous reports of the Council include, the Division of Vital Statistics of the U. S. Bureau of the Census; the Children's Bureau of the U. S. Department of Labor; the Women's Bureau of the U. S. Department of Labor; the Government Health Activities (with a chart); the Division of School Hygiene of the U. S. Bureau of Education; the Health Section of the Bureau of Indian Affairs of the Department of Interior; the Division of Welfare of the U. S. Post Office Department; and the Bureau of Animal Industry. It is planned in the near future to combine all of these reports in a single printed pamphlet, thus offering for the first time correlated, accurate and impartial data concerning the public health work of the Government. The National Health Council is a confederation of the fourteen leading national voluntary health organizations of the country, and has offices in New York and Washington. Copies of the Bureau of Mines Report or of any of the others may be obtained without charge from James A. Tobey, Washington Representative of the National Health Council, 17th and D Streets, N. W., Washington, D. C.

SCIENCE FOR AUGUST 8, 1922, PUBLISHES THE FOLLOWING NEWS ITEMS:

THE nineteenth annual meeting of the British Medical Association was held in Glasgow, Scotland, from July 25 to 28, under the presidency of Dr. David Drummond, of Newcastle-on-Tyne. Sir William Macewen, Glasgow, was elected president for the year 1922-1923. Mr. Charles P. Childe, Southsea, is president-elect for the annual meeting to be held in Portsmouth in 1923.

DR. FREDERICK ROBERT ZEIT, for more than twenty years professor of pathology at Northwestern University Medical School, at his request has been relieved of active duty in the medical school. He plans to spend next year abroad. The pathological museum of the university will hereafter be known as the Frederick Robert Zeit Museum of Pathology.

DR. GEORGE MILBRY GOULD, known for his work in medical ophthalmology and especially in eyestrain, formerly editor of *American Medicine*, *Biographic Clinics* and the Gould Medical Dictionary, died on August 8, aged seventy-four years.

THE third International Congress of the History of Medicine was opened on July 17, at the Royal Society of Medicine, London. Dr. Charles Singer, lecturer on the history of medicine, London University, presided. The following countries were represented: Belgium, Czecho-Slovakia, Denmark, Egypt, France, Greece, Holland, Italy, Portugal, Rumania, Spain, Switzerland and the United States. Lord Onslow, parliamentary secretary to the Ministry of Health, welcomed the delegates on behalf of the government, after which Dr. Singer addressed the congress. Dr. Laignel-Lavastine acknowledged the welcome on behalf of the foreign delegates.

MISSION and educational bodies of East China have set in motion a project to build in Shanghai a union medical school at a cost of \$500,000. St. John's University of Shanghai, which now has a medical department, is one of the institutions supporting the project.

CHANGE OF OFFICE.—Dr. David D. Seannell has removed his office to 320 Commonwealth Avenue, Boston.

Miscellany.

LEGISLATIVE MATTERS

The National Health Council in its report covering August 1-14, relating to legislation contains the following:

The Tariff and Public Health. H. R. 7456.

"The fixing of the final vote on the Tariff Bill

on August 19th, brings up the question as to what will be done on the embargo provisions therein relating to dyes and the related synthetic drug industry. Before the War the United States produced none of these materials and all came from the German chemical sources. Due to necessities created by the War, several hundred plants and laboratories have developed in America, producing Salvarsan, Cinchophen, and Novacaine and other important medicinals. On a recent vote the Senate refused to retain the present embargo against the importation of such products. The medical fraternity throughout the country, and also chemists and laboratories, are demanding that Senators reverse their vote and continue the embargo. A second vote will be had. If the embargo is not retained it is claimed that at least two hundred laboratories and plants producing synthetic medicines will not be able hereafter to meet competition from German sources which will have entry into the United States."

H. R. 4.

"This bill, which passed the House on February 1, 1922, and passed the Senate, August 3, 1922, grants pensions to army nurses who served under contract with the Army during the War with Spain, Philippine Insurrection, or Chinese Boxer campaign for 90 days, or who were disabled and released prior to 90 days' service.

"When the Army Nurses Corps was first organized in 1898, nurses were employed under contract by the Surgeon-General of the Army. Under the existing Army Reorganization Law of February 2, 1901, nurses are given a military status from and after that date. The present law extends this recognition so as to give a military status to Army Nurses beginning with the Spanish War and running to February 2, 1901. The effect of this bill will be to give women who served as nurses the exact pension allowances that are awarded to soldiers in the War with Spain, etc., under the act of June 5, 1920."

AMERICAN RELIEF ADMINISTRATION.

Moscow, July 13.—If medicine could cure the body politic, Russia by now ought to be on a fair way to recovery. The American Relief Administration is pouring medicine into the Soviet Republic, not by the teaspoonful, but by the ton.

If purgation has a corresponding effect upon Russian red that fiery hue ought soon to be reduced to at least a pale pink, for one of the items on the list of surplus army medical supplies sent to Russia is 52,000 pounds of Epsom salts. No one who served with the A. E. F. in France would quite believe it possible considering the number of "C. C." pills consumed by the American Army, but it is a fact that the

surplus sent to Russia is 50,000,000. Epsom salts used with discretion yield some 64 doses to the pound. Fifty-two thousand pounds of Epsom salts would mean 3,328,000 doses. Castor oil is another big item on the laxative list, and there are others.

The quantities are stupendous, but so is the need. Hospital after hospital, dispensary after dispensary has found itself unable to compound the simplest prescriptions because of the lack of many common and generally used pharmaceutical preparations.

Malaria, which is becoming increasingly prevalent in Russia, has raged practically unchecked because quinine was almost unobtainable. America's contribution of quinine is 20,000 pounds.

If Russia should cut its finger there would be no immediate lack of dressings. In the first place, if the cut is not a serious one, there are 80,000 bottles of collodion, to be applied after half a million tubes of iodine had been used to cleanse the wound, and 1,200,000 iodine swabs had been used to wipe it out. If it were more serious, there would be bandages enough and to spare. The A. R. A. has received for distribution 21,600,000 plain gauze bandages and more than 6,000,000 yards of compressed gauze bandages and over half a million pounds of cotton.

The A. R. A. order for neo-salvarsan, which is regarded as a perfect specific for typhus recurrens as well as for syphilis, to date totals nearly half a million tubes.

In addition to the soap distributed through the regular channels in connection with child feeding and general relief, the medical department of the A. R. A. has had close to 1,000,000 pounds to give out to hospitals, homes and institutions.

The 400,000 pounds of sulphur is being distributed.

RÉSUMÉ OF COMMUNICABLE DISEASES JULY, 1922.

GENERAL PREVALENCE.

There were 4,097 cases of communicable disease reported during July—2,734 less than the total for the previous month. The decrease was noted in all of the more common communicable diseases, with the exception of whooping cough, and is the usual decrease for this season.

Anterior Poliomyelitis.—There were 23 cases of this disease reported during July. This shows the usual increase during the month of July, but does not equal the total of 26 cases obtained during July, 1921. The cases as reported are scattered throughout the eastern

section of the State, the only city showing an unusual number of cases being New Bedford, with a total of 7.

Chicken-pox was reported in 136 instances, a sharp drop from 325 cases reported during June.

Diphtheria shows a slight decrease from 459 cases reported during June, the month's total being 381. This disease continues to be reported in slightly fewer numbers than last year.

Encephalitis lethargica was reported in 6 instances.

Epidemic cerebrospinal meningitis was reported but once during the month. While a falling off in the number of cases is usually noted during the summer months, this low figure has not been reached for several years.

Gonorrhea and *syphilis* were reported in 407 and 155 cases, respectively.

Malaria was reported in 8 instances, an increased number of reports to be received.

Measles continues to be reported in large numbers, 1,275 reports being received, as compared with 866 for the same month of last year. This, however, is a decided decrease from the 3198 cases reported during June.

Mumps is also showing a decrease in reports received, dropping from 375 cases in June to a total of 184 in July.

Scarlet fever was reported in 226 instances, about the average for this month.

There were 506 cases of *pulmonary tuberculosis* and 69 cases of *tuberculosis, other forms*, reported. This is a decrease from the previous month.

Typhoid fever increased from 41 cases in June to 74 in July. The only communities showing an unusual incidence were Worcester, with 10 cases, and Montague, with 3 cases.

Whooping cough increased in the number of cases reported to 413. While an increase of 54 over the previous month is not unusual, it is conspicuous because this is the only one of the so-called common diseases which has increased rather than decreased during the month.

RARE DISEASES.

Anterior Poliomyelitis was reported from Attleboro, 1; Boston, 2; Brookline, 1; Cambridge, 1; Clinton, 1; Fall River, 1; Haverhill, 1; Lawrence, 1; Medford, 1; Methuen, 1; New Bedford, 7; Revere, 1; Somerville, 2; Uxbridge, 1; Westfield, 1; total, 23.

Dog-bite requiring anti-rabic treatment was reported from Barnstable, 2; Boston, 9; Cambridge, 1; Chelmsford, 3; Georgetown, 1; Holyoke, 1; Lowell, 15; Medford, 1; Plymouth, 1; Springfield, 1; Wellesley, 4; Weston, 1; Worcester, 1; total, 41.

Encephalitis lethargica was reported from

Boston, 2; Cambridge, 1; Peabody, 1; Springfield, 1; Worcester, 1; total, 6.

Epidemic cerebrospinal meningitis was reported from Fall River, 1.

Hookworm was reported from Boston, 2.

Malaria was reported from Boston, 2; Fall River, 1; Haverhill, 1; Milford, 3; Northampton, 1; total, 8.

Pellagra was reported from Northampton, 1.

Septic sore throat was reported from Boston, 2; Fall River, 1; Leominster, 1; Norwood, 1; Springfield, 1; Whitman, 1; total, 7.

Tetanus was reported from Fall River, 1.

Trachoma was reported from Boston, 4; Fall River, 1; Fitchburg, 1; Lowell, 1; Somerville, 1; total, 8.

DISTRIBUTION.

All communicable diseases: Total cases (all causes) for July, 1922, 4,097; for July, 1921, 3,989. Case rate per 100,000 population for July, 1922, 104.1; for July, 1921, 102.2.

Certain prevalent diseases: *Diphtheria*—Total cases for July, 1922, 381; for July, 1921, 441. Case rate per 100,000 population for July, 1922, 9.7; for July, 1921, 11.3. *Measles*—Total cases for July, 1922, 1,275; for July, 1921, 866. Case rate per 100,000 population for July, 1922, 32.4; for July, 1921, 22.2. *Scarlet fever*—Total cases for July, 1922, 226; for July, 1921, 251. Case rate per 100,000 population for July, 1922, 5.7; for July, 1921, 6.4. *Typhoid fever*—Total cases for July, 1922, 74; for July, 1921, 62. Case rate per 100,000 population for July, 1922, 1.9; for July, 1921, 1.6. *Whooping cough*—Total cases for July, 1922, 413; for July, 1921, 474. Case rate per 100,000 population for July, 1922, 10.5; for July, 1921, 12.1. *Tuberculosis, pulmonary*—Total cases for July, 1922, 506; for July, 1921, 479. Case rate per 100,000 population for July, 1922, 12.9; for July, 1921, 12.3. *Tuberculosis, other forms*—Total cases for July, 1922, 69; for July, 1921, 55. Case rate per 100,000 population for July, 1922, 1.8; for July, 1921, 1.4.

Correspondence.

INSTITUTE OF PREVENTIVE MEDICINE

Mr. Editor:

I am enclosing a free translation of an article by Professor Laurent of Nice, which was read before the Paris Academy of Medicine. In view of the interest now taken in arranging a National Health Examination Day, this added proof of the acceptance by progressive medical men throughout the world of this principle of periodic examination is important.

Yours very truly,

EUGENE L. FISK, M.D.
Medical Director, Life Extension Institute, Inc.,
25 West Forty-Fifth Street, New York.

Translation.

THE INDIVIDUAL HEALTH RECORD AND THE INSTITUTE OF PREVENTIVE MEDICINE. BY PROFESSOR O. LAURENT, OF NICE.

Correspondance Member of the Paris Academy of Medicine; Laureate of the Paris Academy of Sciences; Ex-Major (1st class) of the French Army; Honorary Member of the Academy of Medicine of Rio-de-Janeiro.

(The Bulletin of the Academy of Medicine, Paris, No. 24, June 13, 1922.)

THERE are two provinces of medicine, therapeutic and preventive. The latter, until recently given very little attention, is assuming an importance equal to that of the former, to the extent even that its services are becoming invaluable. Can one compute approximately the number of deaths from typhoid fever avoided during the war, and the number of complications that the epidemics of that disease would have caused, depreciating the life cycle? However, if the length of life has thus increased on the whole, the principal factor in this change is the lowering of infant mortality, so that we may say that the adult still actually remains insufficiently protected against menacing disease (the causes of morbidity-mortality being: toxemias, physical and psychical traumas and apathies, food deficiency and hormone deficiency) for, in spite of numerous efforts on every side, except when forced to do so, it is quite exceptional that man has himself medically examined solely for the purpose of finding out his physical condition, to perfect his hygiene, and to avoid illness. On the other hand, the examination taken solely for the purpose of conserving one's health, ought to be made under certain conditions, if it is to become universal and answer to all the desiderata of science.

There is need to establish a suitable organization with co-ordinated activities.

The Institute of Preventive Medicine, of the conservation of health, of the prevention of sickness, would comprise regional centres for the periodic physico-chemical examination, very easy of access, available to every adult, not ill, affiliating himself with the Association. The realization of this work would be easy because there exist in all the French towns x-ray and chemical laboratories, and the expense that they would incur would be covered by the thousands of individual or collective (industrial workers) subscribers.

Specialists should therefore form themselves into regional groups for the biological physico-chemical examination at the disposition of the member, for whom they will make out a balance-sheet of the complete physical condition, and to whom they will give a health bulletin together with general necessary counsel, especially with regard to hygiene, but without interfering in any way with the diagnostic clinic and with treatment.

These centres of physical examination would be connected with the General Committee, from which they would receive directions and which would have its journal. For propaganda they would rely upon the medical profession and the Red Cross; it could be associated with other works, anti-cancerous and anti-tuberculous, so beneficial to the public.

The health examination would often show up the functional troubles which are predecessors of definite ills, as well as a number of latent ills which are advancing towards the stage of gravity. How many men and women reach the age of 50 without ever having undergone a complete examination, afflicted however for some time with diseases of the heart, the blood vessels and the kidneys, or with various diseases already in an advanced stage! The general practitioner every day deplores the consequences of negligence, ignorance, quackery, prejudice, which only too often prove to be fatal. A great blank to make good!

In the United States the Life Extension Institute, which was organized years ago under the chairmanship of Mr. Taft, former president of the Republic,

comprises 7,000 physicians who have examined 250,000 people. (The privilege is extended to more than 600,000 insurance policyholders.) Dr. Eugene Lyman Fisk, Medical Director of the Institute, has published a number of works on this question; in collaboration with Professor Irving Fisher he is the author of the book, "How to Live." 25,000,000 in the working classes have month infection or defective teeth. It is reckoned that 80 per cent. of the deaths among adults (through infections of the heart, blood vessels or genito-urinary organs) could have been postponed for periods ranging from a few days to several years. And if this year 750,000 people are going to die from preventable diseases, we may conclude that France this year will suffer the loss of 200,000 in this way.

Intended principally for people who have reached the age of 40 and are physically fit, or believe themselves to be so, the physico-medical examination will bear principally on the condition of the heart, the blood pressure, the blood and the urine, but it will be absolutely complete and will take up scientifically the condition of all the organs.

Thus medical science, comprehensive as it is, the Encyclopaedia of Practical Medicine, would constantly be able to penetrate into the smallest corner of Brittany or of Savoy, as well as it can in the Paris hospital. The member would have not only the best chances of conserving his health and lengthening his life, but also in case of sickness or accident befaling him no matter how, of being cared for more logically, the doctor treating him having at hand the invaluable guide of a complete examination made previously. And how many cases of diabetes, of arteriosclerosis, of tuberculosis and of cancer would be discovered in time! The large public or private organizations and the insurance companies would do well to make general the periodic preventive examination.

By the quantity and the variety of the documents that it would gather from all parts and the studies to which it would be able to devote itself, this Institution would constitute a true and extensive practical laboratory of life, being especially useful in determining precisely the medical constitution of a district, its deficiencies and the remedies that should be applied to it. Unfortunately, we must reckon with the general indifference and custom, but we ought not to forget that the sphere of social hygiene is most extensive, unlimited one might say.

I hope and believe, however, that if a group of persons co-operated with the Association with the same zeal that Professor Hartman and Professor Delbet co-operate in the work for the prevention of cancer, the Institute of Preventive Medicine would be able, by the side of other organizations, to make some contribution to public health and to the optimum of efficiency. Social hygiene will have to undergo a great evolution, a thorough revolution of its operations.

THE REPORTING OF TYPHOID FEVER.

CITY OF BOSTON, HEALTH DEPARTMENT.

August 22, 1922.

Mr. Editor:

May I have the privilege of your columns to call attention to a matter which is of serious importance to the public, especially at this season of the year, and which should receive the consideration of the medical profession?

During the past few years it has become a more common occurrence than formerly for the Boston Health Department to discover nests of typhoid fever in the city in one of the following ways:

A death certificate signed by a physician who gives the cause of death as typhoid fever is presented to the Health Department and a burial permit requested. It is at once noted that the case of typhoid fever had never been reported to the Health Department as required by law. In such an instance, the physi-

cian will usually be found to be on the staff of one or another of the Boston hospitals and investigation will show that the deceased has been a patient in the hospital perhaps from one to four weeks and that his temperature chart for the first 48 hours after his admission was alone sufficient to justify a suspicion of typhoid fever. Investigation at the residence of the deceased will disclose other unreported cases of typhoid fever, sick or convalescent, in the family, a physician in attendance, often previous attendance by other physicians, and a history of a household spread of typhoid fever which clearly points to successive contact infections of one member of the family after another.

Or it may be that it is not a hospital but a private practitioner who may finally report typhoid fever in a family which has long been under his care.

When called on to explain failure to report cases of typhoid fever promptly to the Health Department, both hospitals and private practitioners are accustomed to plead difficulty of diagnosis with a good deal of talk about inability to get positive Widal reactions. How this plea may be worked is shown in the following specific instance:

On August 4 a local hospital reported the recent admission of a child ill with typhoid fever. This report led to the discovery by the Health Department that the family had been ill with typhoid in their home since May. This first case developed the first of May in a boy who had apparently picked up the disease somewhere away from home. About two weeks later the father, who was employed in the milk business, came down with the disease. The mother, another boy and then, finally, the little girl who was sent to the hospital, were successively stricken. The family were attended in their home from the beginning by a physician who enjoys a good professional reputation and who has a large practice. He states that clinically the cases were all typical typhoid fever from the first, but that repeated specimens sent into the Boston Health Department Laboratory were reported negative as to a Widal reaction. A prominent local physician was called in as a consultant and as a result of his advice that the attending physician was not justified in calling the cases typhoid fever in the absence of a positive Widal reaction, the Health Department was not notified of the cases, in spite of the evidence of the communicability of the disease. It may be stated that the records of the Health Department Laboratory show that at an interval after the onset of the disease sufficient to lead one to expect a positive Widal reaction, specimens were submitted to the Laboratory in the cases of three members of the family and that the Laboratory returned negative reports.

For various reasons above mentioned the Health Department is discovering when it is too late that with a physician in attendance from the start, one member of a family after another has become infected with a disease clinically indistinguishable from typhoid fever. This has happened not merely once but repeatedly. For the reasons mentioned, in a city which boasts of its opportunities for a medical education, the Health Department does not know how many unreported cases of typhoid fever there may be in the city at the present time and to what extent the health of the people may thereby be jeopardized.

A municipal health department finds it a part of its regular work to quietly clean up messes resulting from diagnostic errors in hospital and private practice and it would appear from the daily experiences of this office that there are two important principles which present-day medical education is failing to teach. One is that the spread of a communicable disease is not going to be checked if one waits until a positive diagnosis can be made before taking effective means to prevent its spread. It makes no

difference whether clinical symptoms or laboratory reports are relied on to establish a diagnosis. It also makes no difference whether the disease be typhoid fever, smallpox, diphtheria, scarlet fever, measles or whooping-cough, or any other communicable disease.

The other fundamental which our daily experience leads us to believe to be not sufficiently appreciated is that when a laboratory report is inconsistent with the clinical evidence in any case, the clinical evidence should not be discarded, but the laboratory report questioned. If a physician will make a regular practice of sending specimens taken at the same time and in the same manner to four different laboratories, he will find that he will receive a certain proportion of inconsistent laboratory reports, whether the specimens be blood for the Widal or the Wassermann reaction, smears for evidence of gonorrhoeal infection, or swab cultures for Klebs-Loeffler bacilli, or specimens submitted for any purpose whatever. It may be that inconsistent or erroneous reports are the fault of somebody in the laboratory, or of the physician who sends in the specimen, or perhaps a consequence of the falsity of some fundamental hypothesis on which the laboratory procedure, or even present-day bacteriology itself, has been built up, but the practical fact always to be reckoned with is that laboratories do return negative reports when positives are to be expected and also return positive reports when, on theoretical grounds, negatives are to be expected. To those who have acquired the habit of looking to the laboratory as a means of diagnosis, instead of as an aid to diagnosis, the procedure above referred to is recommended—the practice of always sending portions of the same specimen to four different laboratories. The results of such procedure will at least tend to jolt a habit of blind reliance on laboratory reports.

Very truly yours,

F. X. MAHONEY,

Health Commissioner.

M. VICTOR SAFFORD, Deputy, Medical Division.

SMALLPOX TREATMENT AND FACTS RELATING TO VACCINATION.

Mr. Editor:

In your issue of August 10, I note with interest Dr. Pasquale Romeo's paper on the treatment of smallpox by the violet ray.

Since coming to Ohio five years ago, I have had the opportunity of studying approximately 2,000 cases of smallpox, many of them confluent on the face and involving the conjunctiva and the mucous membranes. At our isolation hospital, practically the only treatment used was to keep the bowels flushed out and to apply vaseline to the lesions. These cases, of course, were almost invariably diagnosed as influenza and correctly diagnosed only on the appearance of the rash, hence they were always in the pustular stage when admitted. I can recall no case which showed any scarring beyond a few very slight ones on the face. It may be that the violet ray is capable of preventing pustulation: Dr. Oscar Hayes, formerly Health Commissioner of Denver, tells me that they always put their patients out in the sunlight.

Referring also to your issue of Aug. 17, p. 270, I should like to add that out of the hundreds of cases examined by me as Epidemiologist here, only 2 presented the scar of a successful vaccination. About 5 more had scars typical of a secondary mixed infection on the site of the vaccination. The others had never been successfully vaccinated.

Respectfully,

Malcolm Dean Miller, M.D. (formerly a Fellow),
Akron, Ohio, August 23, 1922.

THE STING OF THE SEA-NETTLE.

Mr. Editor:

It occurred to me that possibly this portion of a letter, that has just been written to me by a well known editor, might be of some slight interest to you. As you can see he states: "Is it not queer that we cannot find anything about the sting of the sea-nettle in the books? We know that people have been stung by those animals long before the present summer but why have not the authors had something to say about those things in their writings? I think I have read reports of such cases in some current journals but treatment, if any has been given, has never got out of those journals and into any more or less permanent books of reference. If the BOSTON MEDICAL AND SURGICAL JOURNAL does publish your article be sure that I get a copy of the issue in which it appears, for I wish to speak of it editorially and to call attention to the fact that after going through the indices of almost 1000 books, I have not been able to find even a mention of the sea-nettle, much less to find any comment on its stinging powers or on the treatment of the conditions brought about by its sting. The only discoverable reference is in the Century Dictionary, which states that the sting of the sea-nettle causes urticaria and asks why no authorities on dermatology have ever made mention of such a skin condition, its character or its treatment. I can say that the works on therapeutics wholly overlook this particular thing in the portion of such books that is devoted to specific therapy. I may add that even the great and only Janning (*Jour. A.M.A.*) has wholly overlooked this apparently rather common matter of sea-nettle stings. Perhaps its abstractors have been asleep at the switch."

DOUGLAS H. STEWART, M.D.

128 West 86th Street, New York.

CERTIFICATE OF REGISTRATION LOST.

Mr. Editor:

Dr. Herman Augustus Tyler has, this day, reported that his Massachusetts certificate of registration as a practitioner of medicine, license number 11,846, was left by him on a table in the Hotel Bancroft, Worcester, Mass., and he has been unable to find the same although he wrote to the hotel at once, relative to the loss.

Very truly yours,

SAMUEL H. CALDERWOOD, M.D., *Secretary.*

THE RADIO TALK ON VACCINATION.

Mr. Editor:

Some of my good friends are members of the medical profession, and are doubtless readers of your excellent JOURNAL. It would distress me to have them suppose that I had spoken disrespectfully of physicians or in any way deserving to be characterized as with "coarse humor," in my radio talk on vaccination discussed by your editorial in the August 17 issue. I would, therefore, appreciate the courtesy of a little of your space to explain.

When I said that "the great majority of those who believe firmly in vaccination, including most physicians, take vaccination purely on faith, without giving the subject any real thought," I did not intend to be either humorous or offensive.

Physicians, having to employ in their work such a vast number of therapeutic and prophylactic agents, as they do, must necessarily take not a few of them "purely on faith." I believe no physician who may be given the opportunity to read this, will deny that such is the fact.

It is too bad that skepticism as to the merits of vaccination should so generally be resented by the medical press, as opposition to the medical profession. The practice of vaccination does not figure conspicuously in the work of the average physician and with so many pressing problems to engage his thought, he has no personal incentive to delve into the history and fundamental facts relating to vaccination, which he was taught in college to believe was an unquestionable boon to the race.

I am sure that most physicians who are candid with themselves will admit that they have always considered vaccination as something requiring no thought by reason of its long acceptance by the profession.

Quite recently, I had some friendly correspondence with an eminent physician, erstwhile president of the medical association of his State, concerning vaccination. This gentleman made certain statements which indicated that he had not kept abreast of the recent developments in the product used as vaccine virus, and when I asked further questions he frankly admitted that he could not inform me; that his work was exclusively confined to surgery and that he had not vaccinated anyone for many years. Nevertheless he was thoroughly dogmatic in his support of the practice of vaccination.

I believe that it is a serious mistake for the medical profession to elect to stand back of vaccination as now practiced, as a worthy, if not preëminent example of the advancement of medical learning.

As to the article by Dr. Heiser in the *Journal of the A. M. A.*, to which you refer, I believe any unprejudiced student, be he physician or layman, who studies the official Reports of the Philippine Health Service for the years 1918, 1919 and 1920, will be forced to conclude that the doctor must have written his article hastily, for it discredits itself by crude inaccuracies and by illicit arguments, which I will be glad to point out if you care to give me the space in which to do it.

Sincerely yours,

HENRY D. NUNN,

Manager and General Council, Medical Liberty League, Inc.

REPRINTS.

A few reprints of *The Treatment of Diabetes Mellitus*, by Elliott P. Joslin (Bos. Med. and Surg. Jour., June 22, 1922), are available and may be procured by applying at this office. Price 50c.

BOSTON MED. AND SURG. JOURNAL,
126 Mass. Ave., Boston.

MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE.

EXAMINATION HELD JULY 11, 12, 13, 1922.

Applicants Examined	164
Applicants Registered	138
Applicants Rejected	25
On Table	1

DETAIL OF COLLEGE OF GRADUATION, AS FOLLOWS:

Tufts College Medical School.....	56
Harvard Medical School.....	26
Middlesex College of Medicine and Surgery.....	22
Boston University School of Medicine.....	18
St. Louis College of Physicians and Surgeons.....	9
Massachusetts College of Osteopathy.....	6
College of Physicians and Surgeons, Boston.....	5
Chicago College of Osteopathy.....	3
Kansas City University of Physicians & Surgeons	2
Hahnemann, Philadelphia	2
University of Vermont.....	2
University of Southern California.....	1
University of Budapest.....	1
University of Georgetown.....	1
American Medical Missionary College.....	1
State University of Iowa.....	1
University of Maryland.....	1
Temple University	1
University of Michigan.....	1
Ohio State University.....	1
McGill University	1
Itish Medical College.....	1
Columbia University College Phys. & Surg.....	1
Imperial Ottoman Medical College.....	1
Total	164

THE COLLEGE OF GRADUATION OF REJECTED APPLICANTS IS AS FOLLOWS:

Middlesex College of Medicine & Surgery.....	9
St. Louis College Physicians & Surgeons.....	8
College of Physicians and Surgeons, Boston.....	4
Massachusetts College of Osteopathy.....	2
Tufts College Medical School.....	1
University of Southern California.....	1
Total	25

(University of Budapest, on table.)

SPECIAL NOTICE

The Boston Medical Library, permanent headquarters of The Massachusetts Medical Society, 8 The Fenway, Boston, desires contributions of books, periodicals, pamphlets, medical photographs and autographs, and whatever relates to medicine. Do not throw away or sell for junk anything of a medical or scientific nature, no matter how worthless it may seem, without first giving the Library the privilege of examination.

COMMITTEE IN CHARGE OF PLANS FOR A NEW ENGLAND MEDICAL MEETING.

PRESIDENT JOHN W. BARTON has appointed Dr. A. P. Merrill of Pittsfield and Dr. W. P. Bowers of Clinton to act with him in planning for joint medical meetings of the New England state medical societies.

INFANT FEEDING.

*By an Anonymous Member of the
American Pediatric Society*

LINES SUGGESTED BY THE PAPERS ON INFANT FEEDING

Soranus, he of ancient Rome,
He had a simple trick
To see if milk was fit for sale,
He merely dropped it on his nail
To see if it would stick;
Yet spite of this the babies grew
As any school boy'll tell to you.

Good Metlinger in ages dark
Just called milk good or bad
No acid milk could vex his soul
He gave it good, he gave it whole
A method very sad;
Yet babies grew to man's estate
A fact quite curious to relate.

Time sped and science came along
To help the human race,
Percentages were brought to fame
By dear old Rotch, of honored name,
We miss his kindly face;
Percentages were fed to all
Yet babies grew both broad and tall.

The calorie now helped us know
The food that is required
Before the baby now could feed
We figured out his daily need
A factor much desired;
Again we see with great surprise
The babies grow in weight and size.

The vitamin helps clarify
Why infants fail to gain,
We feed the baby leafy food
Which for the guinea-pig is good
A reason very plain;
And still we watch the human race
Go madly at its usual pace.

We have the baby weighed today
The nursing time is set,
At last we find we are so wise
We can begin to standardize
No baby now need fret;
In spite of this the baby grows
But why it does God only knows.

Away with all such childish stuff
Bring chemists to the fore,
The ion now is all the rage
We listen to the modern sage
With all his latest lore;
And if the baby fret or cry
We'll see just how the ions lie.

A hundred years will soon go by
Our places will be filled
By others who will theorize
And talk as long and look as wise
Until they too are stilled;
And I predict no one will know
What makes the baby gain and grow.

The Boston Medical and Surgical Journal

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Original Articles.

BLOOD CHANGES IN MYELOGENOUS LEUKAEMIA FOLLOWING RADIUM TREATMENT.

By B. R. WHITCHER, M.D., NEW YORK CITY.

(From the Department of Laboratories, New York Post-Graduate School and Hospital.)

History: Hare in his "Practice of Medicine" states that in 1801 Bichat in France noted a disease and condition of the blood which was probably identical with leukaemia as we know it today, and that during the early nineteenth century clinicians observed this condition in certain cases where the blood in the gross had a purulent character, and they designated it as a "suppurative haematitis," of obscure nature and origin. Our first definite conception, however, of leukaemia as we now know it, dates from 1845, when, on March 19, John Hughes Bennett performed an autopsy on the body of a man from the service of Dr. Christison in the Edinburgh Royal Infirmary who had had hypertrophy of the liver and spleen and whose blood was crowded with corpuscles which resembled those of pus.¹ For twenty months he had complained of listlessness on exertion and of a gradually increasing tumor on the left side of the abdomen. Later, other small tumors had appeared in the neck, axillae and groins. At the autopsy no suppurative foci could be discovered

in the body. Under the microscope Bennett was able to see in the blood a great increase in white corpuscles comparable to those of pus, and he found them to have a granular appearance, and on treating them with acetic acid the nuclei were clearly brought out, the nucleus sometimes consisting of one large granule about 1/200 of a mill in diameter, and at other times of two or three smaller granules "as seen in laudable pus." These colorless corpuscles were found in the blood throughout the vascular system. On stripping off a portion of the pia mater and examining the capillary vessels, all that were not too minute to contain them were found crowded with the same kind of corpuscles. He subsequently called the condition "leucoeythaemia" and expressed the view that the increased number of leucocytes was independent of any inflammatory process and that the enlarged spleen "secreted" the purulent matter which caused the pyoid condition of the blood. Seven years later he published descriptions of a number of cases in which the same sort of symptoms and conditions in the blood were found.² In addition, some of these patients had epistaxis and bleeding from the gums, and one of them, a woman of thirty-three, who had enlargement of the liver and spleen, and whose blood showed large numbers of granular leucocytes, two or three times larger than the red corpuscles, showed a haemorrhagic tendency by flooding after confinement.

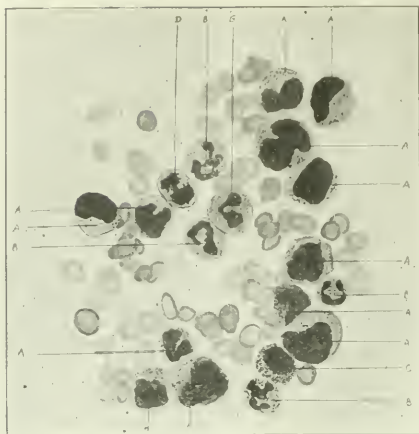


FIG. I.

Group of corpuscles from blood smear of April 30, 1920. A—Neutrophilic myelocytes. B—Polymorphonuclear neutrophils. C—Eosinophilic myelocyte. D—Macroblast undergoing mitosis.

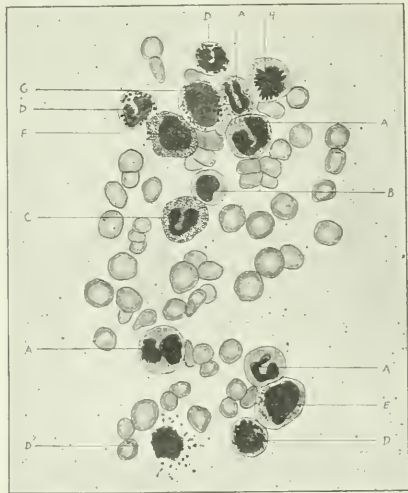


FIG. II.

Another group from blood smear of April 30, 1920. A—Polymorphonuclear neutrophils. B—Small lymphocyte. C—Polymorphonuclear eosinophils. D—Polymorphonuclear basophils. E—Neutrophilic myelocytes. F—Disintegrated basophile. G—Eosinophilic myelocyte. H—Neutrophilic myelocyte undergoing mitosis.

In January, 1848, in Schmidt's "Jahrbucher" Virchow reported the case of a body which he had dissected in August, 1845, in which the blood presented the same increase of colorless corpuscles, also associated with splenic enlargement. He called this condition "weisses Blut," or leukaemia, and in a successive series

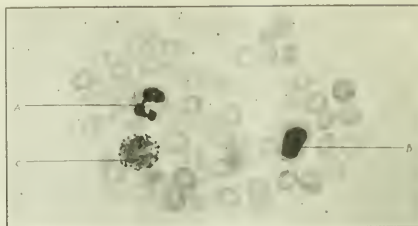


FIG. III.

Group from smear of October 29, 1920. A—Polymorphonuclear neutrophile. B—Large lymphocyte. C—Polymorphonuclear basophile.

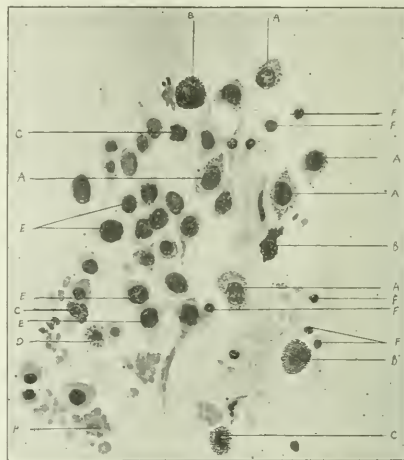


FIG. IV.

Section from marrow of third lumbar vertebra (from autopsy). A—Neutrophilic myelocytes. B—Eosinophilic myelocytes. C—Eosinophilic leucocytes. D—Basophilic leucocyte. E—Megakaryoblasts. F—Normoblasts. G—Macrophasts undergoing mitosis. H—Group of normal red cells.

of articles in his "Archiv" he distinguished the condition clearly from pyaemia and recognized the lymphoid character of the cells in one type and their granular character in the other, and he classified the former as the lymphatic and the latter as the lienal or splenic type. Neumann first pointed out the importance of the bone marrow in the production of these large granular cells.

Pathology: In this disease, according to Dr. Richard C. Cabot³, along with the appearance and increase of the myelocytes in the blood, myeloid transformation of the spleen goes on unchecked in most cases, obedient to that mysterious stimulus which calls the blood-making system into unnatural activity; and since the spleen is not hindered by definite limitations, as the bone marrow is, it may steadily increase in size up to the time of death. However, in some cases, sclerosis of the spleen may occur,

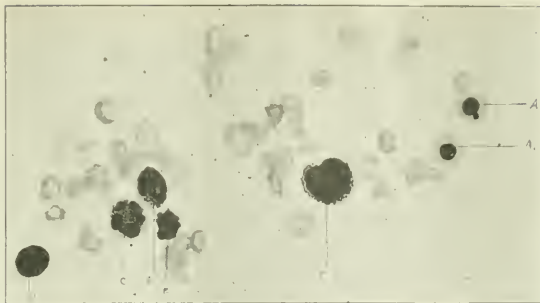


FIG. V.

Smear from marrow of femur (from autopsy). A—Normoblasts. B—Neutrophilic myelocytes. C—Polymorphonuclear eosinophile. D—Large lymphocyte. E—Disintegrating small lymphocyte.

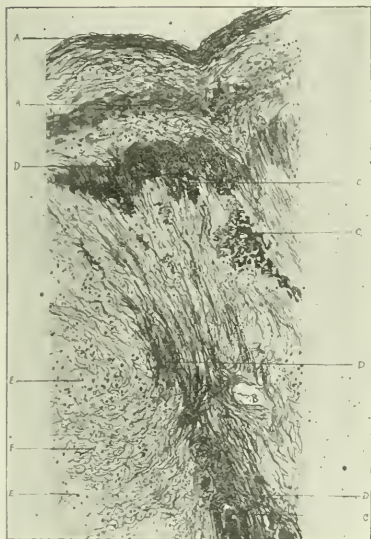


FIG. VI.

Section of spleen seen under low power magnification. A—Capsule showing increased fibrosis. B—Fibrous scar tissue cut crosswise. C—Masses of haemosiderin granules. D—Trabeculae of fibrous tissue invading splenic substance. E—Lymphoid cells. F—Loose fibrous network.

and the organ may then become lighter in weight, sometimes being only one-third of its former weight. The cellular elements are reduced from one-third to one-fifth of their normal bulk and the number of connective tissue bands about the capillaries and sinuses becomes greatly increased. This sclerosis limits the amount of myeloid change and thus prolongs the patient's life by checking the disease.

The main diagnostic feature, however, is found in the blood, where the leucocytes vary

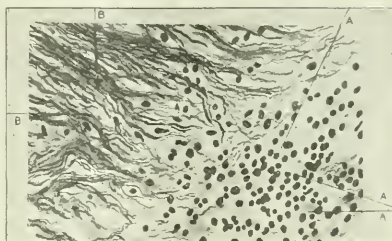


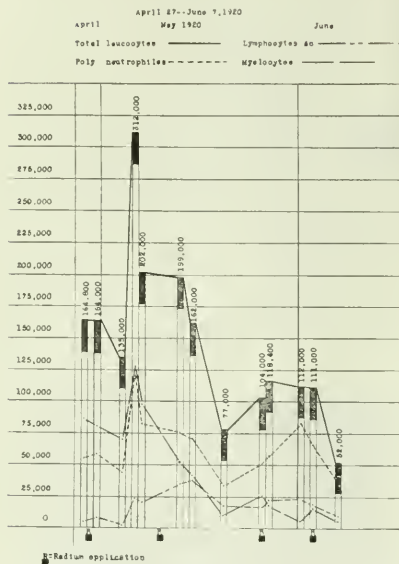
FIG. VII.

Section of spleen seen by higher magnification. A—Lymphocytes. B—Connective tissue fibers.

from 60,000 to as many as 1,500,000 to the cubic millimetre. On examination there is found a very great increase of the large granular leucocytes, and more careful study shows that while at first the polymorphonuclear neutrophils are still the predominant cells, the most striking increase, as seen a little later, is in the neutrophilic myelocytes, which may constitute half or more of the total. Eosinophilic myelocytes appear in large numbers and eosinophilic leucocytes are absolutely increased, like the neutrophilic leucocytes, but they do not attain to any great proportion among the white cells. The mast cell or basophiles show a marked increase, often showing a larger percentage than that of the eosinophiles, and basophilic myelocytes are abundant. Although the lymphocytes are proportionally greatly diminished, their actual number is greater than that found in normal blood. As a rule the red cells are diminished in numbers especially as the leucocytes increase, but the early oligocythaemia is generally of a mild degree. The red cells are usually pale, resembling those in chlorosis, and microcytes and macrocytes are rare. As the disease progresses, however, nucleated red cells, chiefly of the normoblastic type, are seen, and non-granular myeloblasts are also found.

TABLE I.

VARIATIONS IN LEUCOCYTE COUNT FROM APRIL 27 TO JUNE 7, 1920.



Treatment: Until about ten years ago the disease was considered hopeless, but today a patient afflicted with this disease may be greatly benefited and marked improvement in his general condition brought about, not only by the judicious and persistent use of x-ray treatment, but by careful and persistent use of radium. By careful examinations of the patient's blood, improvement under such treatment may be observed. Benzol has also been administered in some cases with beneficial results, but in general the results have not been as good as those following x-ray or radium treatment.

Dom Etienne Gilbert³ in the Paris theses of 1914 describes a number of cases of myelogenous leukaemia treated by radium in which excellent results were observed, the red cells increasing to their normal level and the leucocytes decreasing to nearly their normal level, with improvement of the patient's general health. But ordinarily the cure, according to Gilbert, is not stable, the signs of leukaemia often reappearing after some weeks have passed, and with radium treatment after this relapse, the number of leucocytes diminishes less rapidly and the curative action of radium is less effective.

Dr. Francis W. Peabody in 1917⁴ reported the general results of the treatment of myelogenous leukaemia by radium in thirty-six cases of the disease at the Huntington Hospital during the previous five years. One of the most striking results of radium therapy was the general clinical improvement. Extremely weak, pale and dyspneic patients who had been bed-ridden so gained in strength that they were able to be up

TABLE II.

VARIATIONS IN LEUCOCYTE COUNT, JULY 3 TO SEPTEMBER 30, 1920.

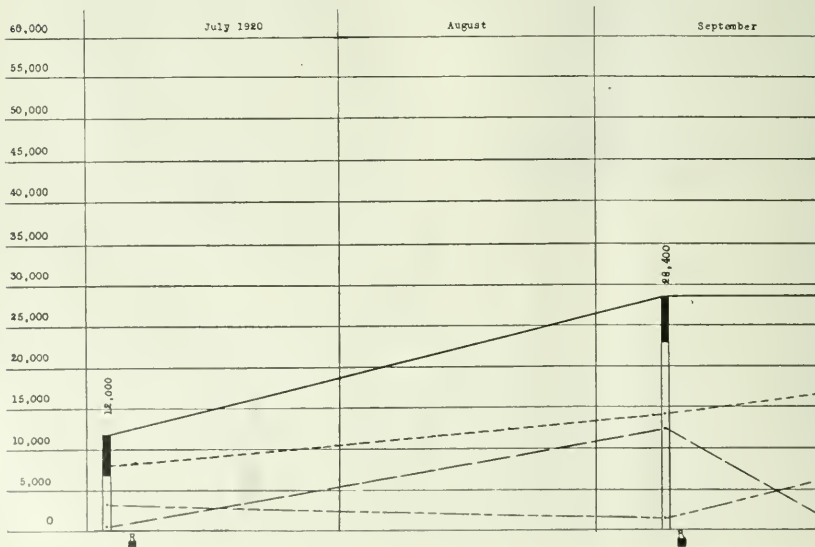


TABLE III.

VARIATIONS IN LEUCOCYTE COUNT, OCTOBER 1 TO DECEMBER 31, 1920.

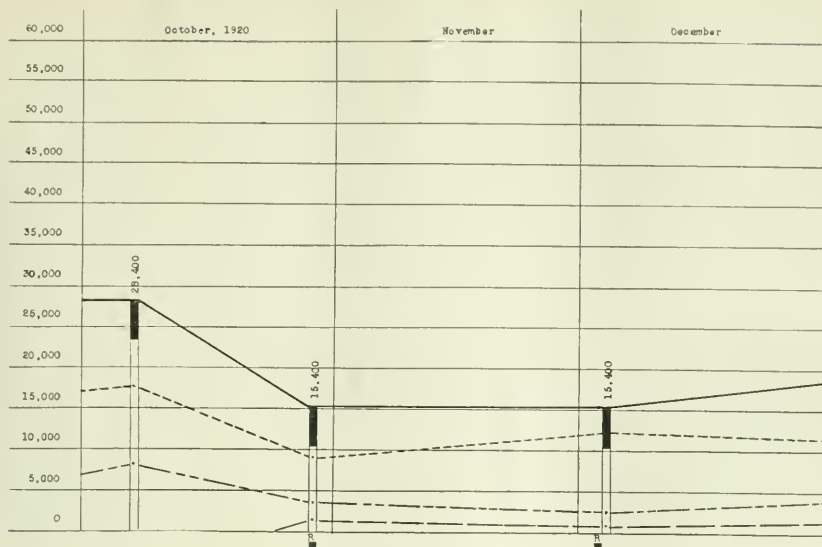


TABLE IV.

VARIATIONS IN LEUCOCYTE COUNT, JANUARY 1 TO MARCH 3, 1921.

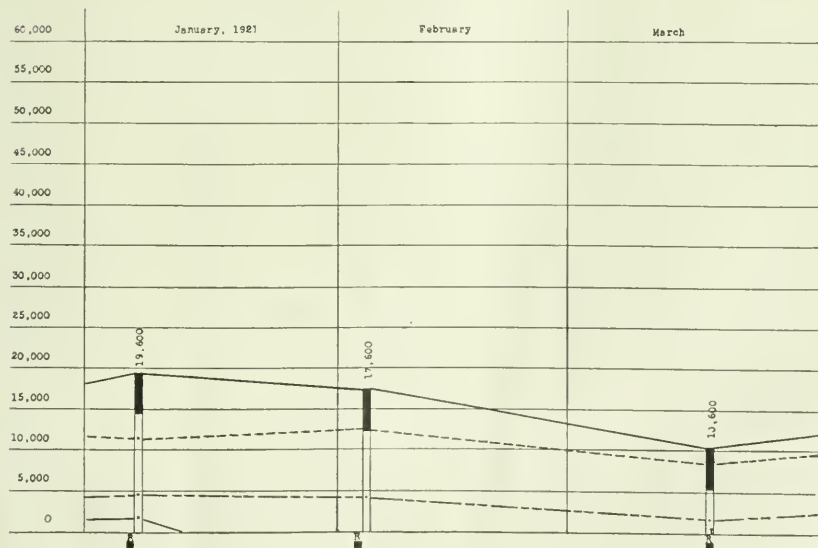


TABLE V.
VARIATIONS IN LEUCOCYTE COUNT, APRIL 1 TO JUNE 30, 1921.

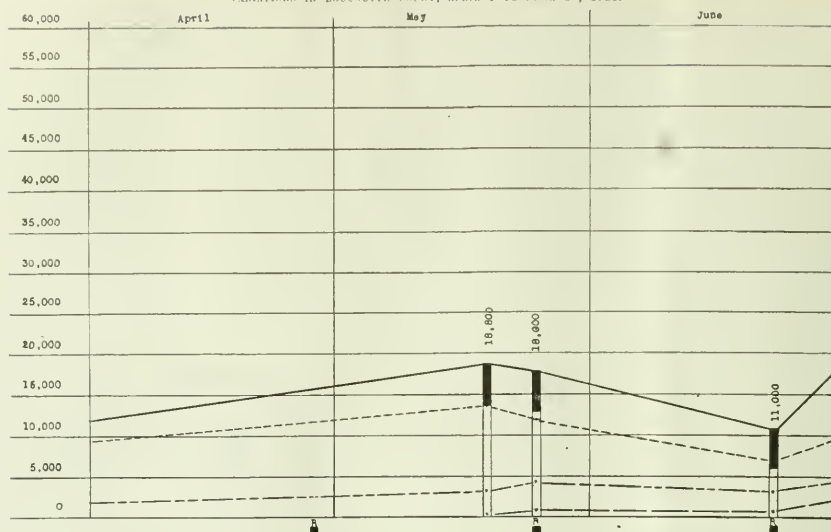


TABLE VI.
VARIATIONS IN LEUCOCYTE COUNT, JULY 1 TO NOVEMBER 1, 1921.

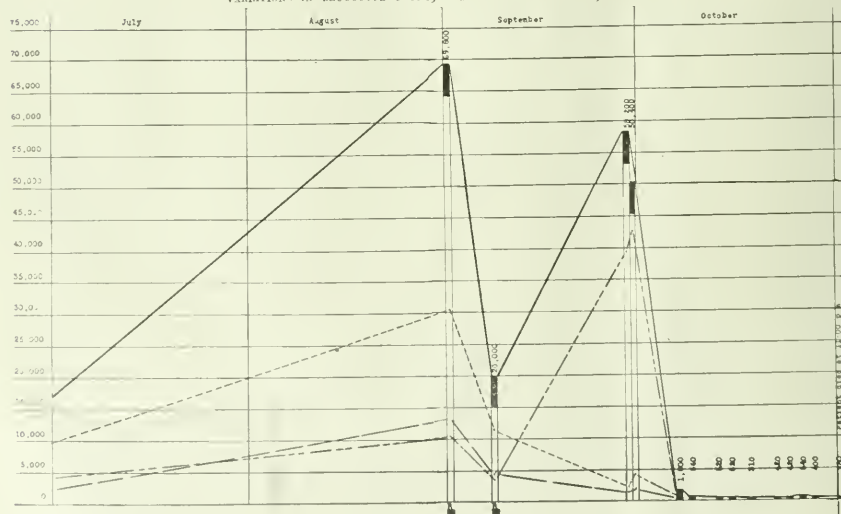
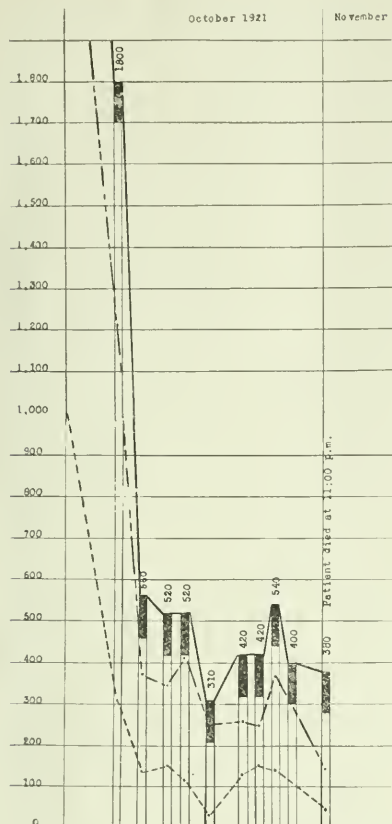


TABLE VII.

SHOWING DEVELOPMENT OF LEUCOPANIA BETWEEN OCTOBER 1 AND THE TIME OF THE PATIENT'S DEATH ON NOVEMBER 1.



and about their daily tasks; the appetite improved, the digestive disturbances became less and there was usually a gain in weight. Another marked improvement was seen in the rapid decrease in size of the spleen.

The most definite effect, however, was seen in the blood picture, the leucocytes being reduced to nearly their normal level. But at the time of his report nineteen of the patients had died and only seventeen were living.

G. Lovell Gulland³ describes the treatment of myelogenous leukaemia with radium, and while he cannot say that the benefit has been permanent, he regards it as more certain and more rapid than that of x-ray. The first obvious effect is a reduction of the leucocyte count, the neutrophils, both the polymorphonuclears and myelocytic forms, being most affected in this decrease. Next are the eosinophiles and basophiles, while the lymphocytes and mononuclears

are less affected. The nucleated red cells practically disappear and in successful cases the blood may return to a nearly normal appearance. The spleen grows smaller, although it never goes back to its normal size. On account of its increased fibrosis one would hardly expect it to do so.

Dr. James Metcalf⁴ regards radium as of excellent value in leukaemias, especially the myelogenous form, and mentions the case of a man of fifty-nine, afflicted with the latter, who showed marked improvement under radium treatment. The radium was applied over the spleen, sternum and epiphyses of the femora and humeri. He believes the doses must be massive and frequent, as small doses only stimulate the abnormal activity.

Report of a Case: During the past two years, several cases of myelogenous leukaemia have been treated with radium at the New York Post-Graduate Medical School and Hospital and it is purposed to report briefly here observation upon one of these in which the treatment has been terminated by the death of the patient.

William E—, aged fourteen years, first came to the Post-Graduate Hospital April 27, 1920. His family and previous history were negative. In July, 1919, his mother observed that he did not play with his former vigor and energy and he was pale and complained of weakness and loss of appetite. He was examined and given medicine by a physician and continued to decline in health. In October, 1919, he was sent to the Staten Island Hospital on account of enlarged spleen, and remained there for a month, when he was discharged with a very bad prognosis.

Physical examination, upon admission, April 27, 1920, showed a very thin and generally anaemic boy. The lungs and heart were negative except for a soft systolic murmur at the second interspace. Abdomen was protuberant and distended by a large mass on the left side extending obliquely downward from the left hypochondrium, to within 25 cm. of the pubic symphysis. Liver was palpable 8 cm. below the costal margin. No free fluid was detected. Superficial veins were prominent, especially over the abdomen and lower extremities. The Wassermann test, taken on April 27, was negative. A provisional diagnosis of splenomyelogenous leukaemia was made.

On April 28, 1920, the first blood count was taken. It showed 3,150,000 red cells per cubic mm., 161,800 leucocytes and 50% of haemoglobin by Talquist. A differential count of 500 white cells showed 35% of polymorphonuclear neutrophils, 3.6% of lymphocytes, mononuclears and transitionals, 7.2% of eosinophiles, 7.6% of basophiles, 37% of neutrophilic myelocytes, 7.4% of eosinophilic myelocytes, 3.2% of basophilic myelocytes, and 4% of myeloblasts. A few normoblasts and macroblasts were seen among the red cells. Some

more smears were taken two days later, which showed a similar blood picture with an occasional myelocyte undergoing mitosis.

On April 29, at 4 p. m., 100 milligrams of radium were applied over the enlarged spleen, the site of application being changed to a new skin area every hour until fourteen hours had elapsed. The radium was contained in a glass tube encased in a gold tube 0.1 mm. in thickness, the whole being contained in a brass tube 1.5 mm. in thickness and a screenage of 3 mm. of lead and 3 mm. of rubber and a towel folded to a thickness of 2 cm. was interposed between the brass tube and the patient's skin. The radiation therefore consisted of what is designated as the gamma rays.

On May 4th the leucocytes had decreased to 135,400 per cubic mm., but two days later they were found to have increased to 312,000 per cu. mm. Another count taken on the following day showed 212,000 leucocytes.

The second radium treatment was given on May 10, when 100 mg. were applied, beginning at 3:50 p. m., in twelve successive applications over different areas, each of duration of one hour, with screenage of 1 mm. of lead, 1 mm. of rubber and a folded towel of 2 cm. thickness between the brass tube and the skin.

By May 13th, the leucocyte count fell to 199,000; two days later to 162,000 and by May 20th it had fallen to 77,400 (See Table I). On May 26th, it was found that the leucocytes had increased to 188,400, and on this date, 120 mgm. of radium were applied over the spleen over eleven successive areas, with a screenage of 1 mm. of lead, 3 mm. of rubber, and a folded towel of the same thickness as before, in addition to the brass tube. The leucocyte count began gradually to diminish, going down to 112,000 by June 1, and 111,000 by June 3. On that date 120 mgm. of radium were applied in seven successive applications to different skin areas over the spleen with a screenage of 3 mm. of rubber and 2 cm. of folded towel, for periods of two hours each. On June 7 the leucocytes had diminished to 52,000, while the red cells had increased to 3,926,000 per cu. mm. The differential count showed the different leucocytes to be in more nearly normal proportions, the polymorphonuclear neutrophils being 37,000 per cu. mm. and the lymphocytes and mononuclears 7,800, while the myelocytes were now only 3,000 per cu. mm. On June 8, the patient was discharged from the hospital.

On July 2 he returned for examination and treatment. The spleen was now greatly reduced in size, the splenic notch being 9 cm. from the tip of the xiphi-sternum, the lower border 14 cm. from the costal cartilage and the right border 14 cm. from the median line. The leucocytes had fallen to 12,000 per cu. mm. On July 6, at 10 a. m., 120 mgm. of radium were applied over four successive areas over the spleen for two hours on each area, with a screenage of 3 mm.

of rubber and a folded towel as before. He returned on September 9, and this time the leucocytes were found to have increased to 28,400. He was now given treatment with 60 mgm. of radium in eight successive applications for sixteen hours altogether, with a screenage of rubber and folded towel.* On October 7, when he came again, the leucocyte count was the same but the polymorphonuclear neutrophils had risen from 14,484 to 17,792 per cu. mm., and the lymphocytes and mononuclears had risen from 1,420 to 8,400 per cu. mm., while the myelocytes were no longer found. On October 28, when he came again for treatment, he showed a decided improvement, the leucocyte count being 15,400 and the blood picture appearing much more normal. The most conspicuous feature in the differential count of this date was the excess of basophilic leucocytes. These cells were 9% of the leucocytes or 1,376 per cu. mm. The polymorphonuclear neutrophils were 9,080, the lymphocytes and mononuclears 3,450 and the myelocytes only 1,016 per cu. mm. The spleen was firm and palpable and the patient had gained ten pounds, his weight now being seventy-nine pounds. The patient was given treatment with 60 mgm. of radium, applied over six successive areas over the spleen for three hours on each area, with a screenage of 1 mm. of rubber and a folded towel, 2 cm. in thickness.

During the winter and spring the patient called at intervals, approximately once every month, for treatment, and on each visit he was treated with radium in fifty-five to sixty milligram amounts, in five to six applications of three hours each over successive areas in the splenic region, with a screenage of 1 mm. of rubber and a folded towel of the same thickness as before. As will be seen in the tables showing the leucocyte variations, the polymorphonuclear neutrophils approached to more nearly their normal level, and the myelocytes showed a marked decrease, none being found in the differential counts taken in February and March, 1921, and only a few being found in the counts of May and June. The patient's general condition was greatly improved, the anaemic pallor and prominence of the superficial veins having disappeared, and the spleen was reduced nearly to a quarter of its former size.

The patient was away in the country during the summer, but returned for treatment September 1. At this time it was found that the leucocytes had increased to 69,800 per cubic mm., with an increase of myelocytes above the lymphocytes. He was given treatment with 90 mgm. of radium over six successive areas of skin with the same amount of screenage as on last visit. He returned a week later for examination and treatment, and this time the leucocyte count had fallen to 20,000. He was now treated with 100 mgm. of radium in four successive applications of four hours each.

*The record does not give the thickness of the rubber.

On September 29, the patient came to the hospital complaining of drowsiness, fever and loss of appetite, and a herpetic sore on the lower lip. The leucocytes had risen to 58,200, but the differential count showed a most striking contrast to the previous ones, in that the polymorphonuclear neutrophils had fallen to 4% or only 2,328, while the lymphocytes had risen to 58% or 35,596 per cu. mm. The patient bled occasionally from the nose and rectum. The red corpuscles were 2,328,000 per cu. mm. On October 7, the total leucocyte count showed a remarkable fall to 1,800 per cu. mm. and the anaemia was more marked. The sore on the lower lip had formed an ulcer the size of a silver dollar and this was diagnosed as gangrenous septic dermatitis following deep infection of the herpetic sore. By October 18, the leucocytes had fallen to 310 per cu. mm., the red cells to 1,148,000 and the haemoglobin to 23.5%. On October 25, the patient was transfused with 500 cc. of blood with only slight improvement. On November 1, the red cells were 1,252,000, the haemoglobin 24% and the leucocytes 380 per cu. mm., of which there were 18% polynuclear neutrophils, 70% lymphocytes and 12% basophiles. The patient died that night at 11:00 o'clock.

The autopsy performed the next day at 9 a. m. showed the following conditions:

General Appearance: At the left lower angle of the mouth was a serpiginous ulcer, about 40 mm. in diameter. Its floor was sunken and covered with a brown crust. The skin over the left hypochondrium showed several dull white scars, with pigmented borders, level with the skin surface, evidently due to radium burns, the largest being 50 x 17 mm. in extent.

Abdomen: 2,000 cc. of opalescent yellow fluid containing fibrin flakes found in the abdominal cavity.

Enlarged spleen weighing 780 grams, adherent to parietal peritoneum beneath cutaneous scars, and containing deep fibrous scar tissue sending fibrous trabeculae into the splenic substance.

Liver weighed 1,930 grams. Its capsule was thickened and lobules enlarged.

Posterior mesenteric vein and tributaries congested. Mesenteric and retroperitoneal lymph nodes brown and moderately enlarged.

Gelatinous oedema of retroperitoneal tissue behind ascending colon with gas bubbles and putrefactive odor, evidently due to agonal invasion of anaerobic bacteria.

Thorax: 200 cc. of clear yellow fluid in each pleural cavity. Oedema in posterior portions of both lungs, with firm airless reddish-brown nodule in upper lobe of right lung.

Small petechial haemorrhages in pericardium, both parietal and visceral.

Yellow marrow of long bones replaced by dark red marrow.

Microscopic Findings: Spleen: Capsule

showed dense fibrous thickening with thick fibrous scar tissue extending into the splenic substance by irregular fibrous trabeculae, infiltrated along the borders with haemosiderin granules. The Malpighian corpuscles were largely replaced by fibrous connective tissue and the splenic pulp was infiltrated with a fibrous network containing many sinuses and capillaries. Only a few small patches of round cells resembling splenic pulp and occasional accumulations of red cells and many round cells were found. Few polynuclear and eosinophile cells and very few myelocytes were found. The red cells of the vessels were very scanty, pale, and irregular in form.

Bone Marrow: Smears from the marrow of the third lumbar vertebra showed, out of a count of 200 white cells, 12 polynuclear neutrophils, 112 lymphocytes and mononuclears, 1 eosinophile, 4 basophiles, 26 neutrophilic myelocytes and 33 disintegrated. Occasional nucleated red cells were seen. Sections of the marrow showed ragged masses of red corpuscles, including many normoblasts with occasional microblasts and a few megaloblasts and rarely a giantoblast. Neutrophilic and eosinophilic myelocytes and occasional polynuclears were seen, with large numbers of nongranular mononuclear cells greatly outnumbering the myelocytes and the polynuclears.

Smears from the shaft of the femur showed, out of a count of 200 white cells, 8 polynuclear neutrophils, 114 lymphocytes, 6 eosinophiles, 3 basophiles, 12 neutrophilic myelocytes, 3 eosinophilic myelocytes, 1 basophilic myelocyte and 33 disintegrated cells. During the count, 19 normoblasts, 7 microblasts, 4 macroblasts and 1 megaloblast were found. In the sections the marrow substance showed a more compact mass of cells than in the third lumbar vertebra. The myelocytes and polynuclears were more abundant and large numbers of non-granular mononuclear cells were seen. Sections from a rib and from the sternum showed a similar appearance to that of the third lumbar vertebra, except that the myelocytes and the polynuclears were less numerous.

Liver: Some of the cells contained minute fat particles. In a few places haemosiderin granules were found in the intercellular channels. In one area these channels were distended into spaces resembling alveoli, from 1-40 to 1-10 mm. in size, evidently having formerly been distended with accumulations of myelocytes.

In the mesenteric lymph nodes the lymphoid tissue was mingled with red cells largely disintegrated. In some glands there was an increase of fibrous connective tissue in and around the lymphoid tissue, with some thickening of the vessel walls.

Lungs: In a section including the nodular portion, the alveoli were solidly filled with blood, but some contained plasma with few red cells, many of these being disintegrated. The

alveolar capillaries were much engorged. Very few leucocytes were found except endothelial cells, of which there were many.

In conclusion it will be seen that, while the patient appeared to be greatly benefited for the time by the radium treatment, its effects were temporary and when the patient discontinued treatment for two months he suffered a relapse. His subsequent condition showed the need of using the utmost caution in giving radium treatment, especially after a relapse. While an apparent improvement in the blood picture did follow the first treatment with radium after the patient's return, the most striking phenomenon after the second treatment was the rapid fall in polymuclear leucocytes, the blood picture coming to resemble that of lymphatic leukemia, and the rapid leucopenia and anaemia which followed, resulting in the patient's death.

The observations in this case show, on the one hand, that the application of radium in myelogenous leukaemia does produce an apparently beneficial effect on the patient, if the amount of radium applied is regulated with caution, as the leucocyte count is reduced to nearly its normal level, the myelocytes are greatly decreased, and at times made to disappear altogether, the blood is brought to a more nearly normal appearance, and an apparent general improvement takes place in the patient's clinical condition. But the treatment needs to be given at regular intervals. On the other hand, the study of this case indicates that radium is a factor fraught with danger, and that caution is necessary in regulating the amount to be applied, lest an excessive amount of radium or too frequent application may cause undue destruction of the leucocytes and so injure the reproductive powers of the bone marrow that a rapid leucopenia and anaemia result.

While Dr. Metcalf⁹ in his treatment of myelogenous leukaemia with radium has applied it over the sternum and epiphyses of the femora, and humeri, as well as over the enlarged spleen, it has been deemed of late, here at the Post-Graduate Hospital, to be a better procedure to apply the radium over the enlarged spleen only, and the lymph nodes, if enlarged, but to let the bone marrow alone, until the myelocytes have entirely disappeared from the blood. There appears to be danger that, in treating the bone marrow at the same time, its power to produce new red cells may be weakened so that the red cells and haemoglobin decrease along with the leucocytes. However, much more experience will be required to ascertain exactly the effect to be expected and the best mode of applying radium therapy in this disease.

The writer gratefully acknowledges his indebtedness to Dr. George T. S. Willis, Associate in Medicine, in charge of radium therapy, who had the care and treatment of the above case, for permission to utilize it in this report.

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BIO-CHEMICAL STUDIES IN TEN CASES OF DEMENTIA PRAECOX.

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THE following bio-chemical studies of dementia præcox were made in the hope that they might aid in our understanding of the disease and that we might discover some positive data which would be of value in working out the etiology of the disease or which would serve as a means of differential diagnosis.

The following studies were made:

1. A twenty-four hour specimen of urine was examined quantitatively for total acidity, total nitrogen, ammonia nitrogen, uric acid and chlorides. The methods used were modifications of Folin's methods. The chlorides were tested by adapting Whitehorn's methods.
2. The renal function test was made in the usual way by injection of one cubic centimeter of phenolsulphophthalein solution subcutaneously and examining the urine at the end of one and two hours.
3. The blood count was made in the usual manner. The hemoglobin was estimated by a Dare hemoglobinometer. The pipettes used were certified by the Bureau of Standards.
4. A twelve-hour fasting blood was examined quantitatively for non-protein nitrogen, dextrose, uric acid, chlorides and carbon dioxide combining power of the plasma. The methods used were those of Folin and Wu, Whitehorn and Van Slyke.
5. The blood sugar tolerance curve was obtained by giving the patient, who had fasted for twelve hours, 1.75 grams of dextrose per kilo of body weight. The dextrose was dissolved in two and a half times its weight of water. The fasting blood and blood taken one, two and in some cases three hours after ingesting the dextrose were examined. The urine was examined qualitatively for sugar in the latter series.
6. The Goetsch test was made by injecting one-half cubic centimeter of adrenal 1:1000 intradermally and following the pulse, blood pressure, etc., as described by Goetsch¹.
7. The basal metabolism was estimated by a Jones metabolism. At least one and usually two checks were run.

The first nine cases were studied at Bloomingdale Hospital and the tenth at the Boston Psychopathic Hospital. The laboratory studies on the tenth case were made by different technicians and the methods used were different. The non-protein nitrogen and dextrose of the blood were estimated by Benedict's method. The

basal metabolism was done with a portable Benedict apparatus.

After an interval of six months the blood sugar curves and basal metabolisms were repeated on as many cases as possible.

The findings are as follows:

*ANALYSIS OF URINE (24 hours specimen).

Case	Titrated Acidity C.C. N/10 NaOH	Total Nitrogen	NH ₄ Nitrogen	Uric Acid	Chlorides as NaCl
1	136.5	5.25 grams	0.15 gram	0.31 gram	
2	639.6	12.55 grams	0.69 gram	0.574 gram	
3	284.4	7.78 grams	0.46 gram	0.36 gram	6.52
4	222.6	1.96 grams	0.3 gram	0.33 gram	
5	438.6	11.42 grams	0.75 gram	0.50 gram	
6	500.25	12.79 grams	1.16 grams	0.395 gram	11.87
7	495.9	11.75 grams	1.41 grams	0.33 gram	12.345
8	323.4	8.51 grams	0.40 gram	0.49 gram	5.78
9	240.8	6.08 grams	0.34 gram	0.28 gram	4.12

*The possibility of incomplete specimens, due to patient's lack of cooperation, must be considered.

The urine findings show considerable variation. They add nothing, however, to Folin's² studies on the subject, and we agree with Folin's conclusions that "individual peculiarities or abnormalities of metabolism, *i. e.*, pronounced from the standard values . . . are also very

numerous, but so far it has been found impossible to identify any one metabolism peculiarity with any particular form of mental disorder."

The renal function tests show a normal functioning of the kidney.

The blood counts show an essentially normal picture. The hemoglobins are high but within normal limits. The red blood cell counts are likewise high but we feel should not be regarded as of any importance from a pathological standpoint. While the average red blood cell count is usually given as 5,000,000 for males, there is a fairly wide normal variation. For instance, Ehrlich and Lazarus³ give the normal variations from 4,000,000 to 7,000,000, and McJunkin⁴ says: "In normal blood there are 4,000,000 to 6,500,000 red blood corpuscles per cubic milli-

RENAL FUNCTION TEST (Phenolsulphonphthalein).

Case	1st hour	2nd hour	Total Output
1	28%	24%	62%
2	46%	23%	69%
3	55%	10%	65%
4	60%	18%	78%
5	45%	30%	75%
6	50%	25%	75%
7	45%	20%	60%
8	65%	25%	90%
9	50%	18%	68%

BLOOD COUNT

Case	Hgb. (Dare)	Red Blood Cells	White Blood Cells	Polys.	Small Lymph.	Large Lymph.	Trans.	Eosin	Baso
1	101%	5,168,000	7,800	53%	37%	5%	2%	2%	1%
2	96%	7,972,000	7,000	57%	39%	2%	2%	—	—
3	89%	5,228,000	5,400	64%	34%	2%	5%	5%	—
4	86%	5,320,000	4,800	55%	40%	2%	3%	—	—
5	100%	6,392,000	7,400	58%	30%	3%	6%	2%	1%
6	86%	5,432,000	7,600	69%	25%	1%	3%	2%	—
7	96%	5,552,000	10,200	63%	29%	4%	1%	3%	—
8	99%	5,552,000	10,200	74%	21%	3%	2%	—	—
9	103%	4,380,000	6,400	48%	38%	2%	6%	5%	1%
10	85%	—	—	59%	30%	10%	—	1%	—

ANALYSIS OF BLOOD.*

Case	N.P.N.*	Dextrose*	Uric Acid*	Chlorides* as NaCl	C.C. of CO ₂ *
1	39.9	86.9	3.3	520	63.1
2	31.68	157	2.6	533	59.8
3	28.02	119	3.13	487	
4	28.08	137	3.05	528	69.2
5	27.0	120	3.33	462	
6	30.3	97	3.2		
7	28.56	114	2.88	495	64.0
8	25.53	128	2.27	478	60.7
9	26.1	93	1.2	461	
10	36.5	113.7	2.25		

* Expressed as grams per 100 c.c. of whole blood.

meter. The white blood cell counts are normal. The differential counts show a normal relation of the different types of cells, except that two cases show an eosinophilia of 5 per cent."

The blood chemistry findings are essentially normal, with a tendency towards a slight rise in the blood sugar. The literature on the subject has been fully reviewed by one of us⁶, and we feel that there is no reason to consider that the fasting blood shows any characteristic abnormality.

BLOOD SUGAR CURVES.

Before considering our findings it might be well to briefly summarize the literature on the subject.

Ohmstead and Gay⁶ have recently made rather extensive studies on the subject. They suggest the use of the term "blood sugar curve after glucose meal" or "blood glucose curve." They have made an interesting classification of types or curves, which is given below. The method used was essentially the same as that described at the beginning of this article.

The normal curve has a fasting level of 80 to 120 mgm. At the end of the first hour there is a hyperglycemia of from 140 to 190 mgm. and at the end of the second hour the blood sugar has returned to the normal limits. The third hour is still within normal limits but is very frequently lower than the second hour.

BLOOD SUGAR CURVES.

Case	Milligrams Dextrose Per 100 C.C. Blood			
	Fasting	1st hour	2nd hour	3rd hour
*1	87	154	91	81
2	157	250	179	..
*2	111	200	115	60
3	119	232	105	..
4	137	175	183	..
5	120	277	146	..
*5	100	143	100	75
7	114	292	236	..
*7	105	266	191	143
8	128	180	132	..
*9	83	200	187	171

* These tests were made after an interval of six months. In cases 1 and 9, cooperation could not be secured for the first series; in cases 6 and 10, cooperation could not be secured for either series.

Abnormal curves are divided into two main classes. The term "sustained" curve applies to all curves which show an abnormally sustained hyperglycemia. These "sustained" curves are divided into two groups. In group two are included cases in which there is still hyperglycemia at the end of the second hour, but which show a normal sugar content at the end of the third hour. Group three includes cases in which the hyperglycemia is sustained even at the end of the third hour.

The term "subnormal" curve applies to those cases which show a normal fasting sugar and no hyperglycemia following the administration of the glucose meal. According to the authors, this may be caused by one or both of two possi-

bilities: "Either a delayed absorption rate or an increased glycoemic function." They feel that the "subnormal" curve of hypothyroidism is not due to delayed absorption, whereas delayed absorption may occur in the subnormal curve of hypopituitarism.

Among a large series twelve cases of dementia praecox were examined. Five showed normal curves. Three showed No. 2 hyperglycemic curve. Three showed No. 3 hyperglycemic curve and one showed a subnormal curve.

They conclude: "The pathologic conditions in which the form of blood glucose curve is usually (within certain limits) constant, are: (1) hyperthyroidism and hypothyroidism; (2) hypopituitarism; (3) diabetes mellitus."

Kooy⁷ examined a large number of cases of mental disease, including ten cases of dementia praecox. These latter were all cases of several years' duration (except one which had been sick for six months only) and were considered typical cases. The procedure used was as follows: The fasting blood was taken in the morning; then a breakfast of 100 gms. of bread and 200 c.c. of milk was given. Blood was drawn at forty-five minute intervals for three times. Patients avoided exercise, excitement, etc. The average blood sugar findings of the ten cases were: Fasting 93 mgm.; three-quarters of an hour, 123 mgm.; one and one-half hours, 110 mgm.; two and one-quarter hours, 110 mgm. Thus Kooy found a consistent No. 2 hyperglycemic curve. (Blood was not taken after two and one-quarter hours.)

Raphael and Parsons⁸ examined the blood sugar curves of several types of mental disease, including eleven cases of dementia praecox, using the standard technique.

They conclude: "The curves of the dementia praecox group are strikingly different from those of the others. (Manic depressive depression, hypomanic and norms.) They show a great variation in their acme levels, yet the shape of all curves within the group is practically the same. Curves 1 to 7 inclusive are all practically parallel to one another. All of these cases were in the acute phase. The general shape of the curve differs from the normal in that the initial fasting level is lower, the acme is relatively high and the return to the primary level takes more than three hours, there being a very definitely delayed tolerance.

"Whether or not all of the variations of these curves can be explained by the emotional reactions of the patients, this in turn being in interrelation with a hypersecretion of epinephrin, thus mobilizing the glycogen of the liver and hence increasing the amount of glucose in the circulatory blood is an unsettled question.

"It may be stated on the basis of the data secured in these experiments, employing the Benedict modifications of the Lewis Benedict method for blood sugar, that tolerance curves differ from those obtained in normal individuals

... that in each clinical group, the curves had features in common that suggest a curve type; that among cases of dementia praecox tolerance curves vary according to the phase of the clinical course."

Lewis and Davies⁹ studied twenty-two cases of "schizophrenia." Following the classification of Olmstead and Gay, they found subnormal curves in sixteen of their cases, a sustained curve in five cases and an "atypical" curve in one case.

We find, therefore, that different observers report quite different curves in the blood as a result of glucose feeding and that all types of curves are reported.

In our own cases we found normal curves in three cases, sustained curves in three cases and two cases which gave sustained curves at the time of the first examination and normal curves at the time of the second examination six months later.

The height of the curve is abnormal in seven of eleven tests, ranging from 200 mgm. to 292 mgm.

The interpretation of these findings can best be taken up in connection with the basal metabolism.

Goetsch¹ regards the injection of epinephrin as a specific test for hyperthyroidism. There is considerable dispute as regards the specificity

GOETSCH TEST.

Case	Rise in Blood Pressure	Rise in Pulse Rate	Other Physical Signs	Mental Symptoms	Estimation of Reaction
1	8 mgm. Hg.	0	None	None	Negative
2	20 " "	14	None	None	Negative
3	25 " "	14	None	None	Negative
4	24 " "	14	None	None	Negative
5	10 " "	8	None	None	Negative
6	18 " "	8	None	None	Negative
7	36 " "	32	None	None	Negative
8	10 " "	8	None	None	Negative
9	14 " "	20	None	None	Negative

BASAL METABOLISM*

Case	First Estimation	Second Estimation	Third Estimation
1	-20		
2	-2	+5	
3	-12	-13.5	
4	-20		
5	-27		
6	+5	+1	
7	-12	-12.5	
8	-15	-9	
9	-8		
10	-24	-31	-37

* Where second or third estimations are recorded an interval of over one week occurred between such estimations.

SECOND SERIES*

Case	1st Estimation	2nd Estimation
1	-2	
2	+1	
4	-10	
5	-10	
6	+5	
7	-8	
8	-10	
9	+10	+10

* Taken after an interval of six months.

Case	FIRST SERIES Average	SECOND SERIES Average
1	-20	-2
2	+1.5	+1
3	-13	
4	-20	-10
5	-27	-10
6	+3	+5
7	-12	-8
8	-12	-10
9	-8	+10
10	-31	

of this test, but there is no question that a large percentage of cases of hyperthyroidism give a positive reaction to this test.

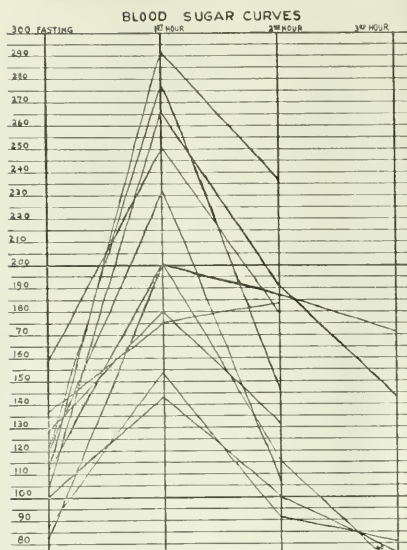
The consistent negative reaction of all our cases to this test can be considered as very strong evidence that hyperthyroidism was not present.

BASAL METABOLISM.

The basal metabolisms are of interest. In the first series of readings only three are normal, taking ± 10 per cent. as the normal limits. The other seven are all decreased, ranging from -12 per cent. to -31 per cent. In the second series of readings, which were done after an interval of six months, the readings in eight cases are all within normal limits. Two cases left the hospital and therefore could not be repeated. While there is some increase in many of the cases, the tendency to remain above or below the zero reading is unchanged, except in one case, No. 9. In this case there was a history of recent enlargement of the hands and head with an acromegalic picture. Cases 1 and 7 showed some improvement in the six months' interval. It is noteworthy that not a single test in the entire series gave an abnormally high reading, and, except in Case 9, the highest reading was +5 per cent. On the other hand, abnormally low readings were common, the lowest being -37 per cent.

DISCUSSION.

It is well known that certain endocrine conditions influence the blood sugar tolerance curve and the basal metabolism. There have likewise



been numerous attempts to correlate dementia praecox with various endocrine disorders, particularly hypothyroidism¹⁰ and hypogonadism¹¹. The literature is much too full to be reviewed here and is as yet in a very chaotic state.

It cannot be said that our studies have clarified the matter in any way. We find nothing to confirm a simple dysfunction of a single endocrine gland as a constant condition in dementia praecox.

While the tendency towards low basal metabolisms is suggestive of hypofunction of some gland, the tendency towards abnormally sustained sugar curves is equally suggestive of hyperfunction.

It is perhaps worthy of note that in no case was there increased basal metabolism (which is usually a sign of hyperfunction of some gland), nor was there a subnormal sugar curve (which is usually a sign of hypofunction of some gland).

The two other endocrine conditions which might explain our findings are either a pluriglandular condition or an altered secretion of a single gland. It is manifestly impossible to more than mention these possibilities.

CONCLUSIONS.

As a result of a series of biochemical studies on ten cases of dementia praecox no constant findings were obtained which would serve to explain dementia praecox on the basis of a simple dysfunction of a single gland.

There was found a tendency towards a low basal metabolism and an abnormally sustained

blood sugar curve, but such findings were not constant.

In no case was there an increased basal metabolism nor was there a subnormal (flat) blood sugar curve.

CASE 1. Dementia praecox, paranoid type. Male, 49 years. Physical examination negative.

CASE 2. Dementia praecox, paranoid type. Male, 17½ years. Physical examination showed right pupil slightly larger than left. Blindness of right eye. Tremors of fingers and tongue. Deep reflexes exaggerated but equal. Pubic hair of feminine distribution. Body contour otherwise normal.

CASE 3. Dementia praecox, paranoid type. Male, 30 years. Physical examination showed right pupil slightly larger than the left. Tremors of fingers and tongue. Deep reflexes exaggerated but equal. Blood pressure 95/66.

CASE 4. Dementia praecox, simple type. Male, 28 years. Physical examination showed rather poor nutrition and fine tremor of fingers.

CASE 5. Dementia praecox, paranoid type. Male, 40 years. Physical examination showed thyroid palpable, tremors of tongue and fingers and deep reflexes exaggerated but equal.

CASE 6. Dementia praecox, paranoid type. Male, 27 years. Physical examination showed no neurological findings. Blood Wassermann was weakly positive. Spinal fluid was negative to all tests.

CASE 7. Dementia praecox, paranoid type. Male, 33 years. Physical examination was negative except for poor nutrition.

CASE 8. Dementia praecox, simple type. Male, 26 years. Physical examination showed fine tremor of tongue and fingers. Deep reflexes were hyperactive with tendency to patellar ankle clonus on the right.

CASE 9. Dementia praecox, paranoid type. Male, 24 years. Physical examination showed tendency towards acromegalic type of bone conformation. History of recent enlargement of hands and head. Otherwise negative.

CASE 10. Dementia praecox, simple type. Male, 15 years. Physical examination showed poor development. Fingers long and graceful. No axillary hair. Pubic hair of the feminine type.

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Medical Progress.

REPORT ON DERMATOLOGY.

By JOHN T. BOWEN, M.D., BOSTON.

SUSCEPTIBILITY TO POISON IVY.

BROWN¹, of the Department of Pharmacology of the University of Minnesota, has recorded the results of his experiments as to the variability in susceptibility to poisoning. He truly says as to treatment that almost everything conceivable has been employed, and that this is evidence that we are still ignorant as to what are the best measures of relief. He began with the belief that some persons are insusceptible to the poison, but has changed his opinion in the light of his own investigations.

Observations were made on a group of students who were willing to submit to experimentation, by placing a piece of the fresh leaf on the left arm, and holding it there by means of adhesive plaster. This was removed at the end of 12 hours, and the susceptibility estimated by the time required to produce a reaction and by the different degrees of severity. It was found that in a group of nine persons, three were, as at the time supposed, insusceptible. Three of the remaining six had previously considered themselves immune, but the reaction was longer delayed than in the case of the other three. On an average it required approximately 2-3 days for the symptoms to appear after the leaf had been applied. To another group of 11 students a tincture prepared from the leaves was applied to the arm, and the area covered with adhesive plaster. All except two showed a reaction, and among those showing positive results were two who had not been poisoned by the leaf in the preceding experiment. The tincture appeared to give more certain results than the leaf; but the degree of reaction, as in the case of the leaf, bore no relation to the time required to produce the eruption.

Brown isolated a fixed oil or oily substance from the leaves, which is probably the same as the toxicodendrol of Pfaff. This failed to produce an eruption in only a very few instances. With regard to the spreading of the eruption, some have held that it is carried from the initial point to the other parts of the body by the hands or clothing. This has been proved to be the case in some instances. Brown's experiments by covering the part to which an extract of the leaves had been applied with a celluloid vaccination shield, show that the eruption may be spread to the body by means other than direct or indirect contact; presumably, therefore, through the blood or lymph. His experiments did not show that the serous exudate from the ruptured vesicles could spread the eruption. In the case of a person who chewed the leaves, the mucous membranes of the mouth were not af-

ected, and, moreover, of more than 100 observed cases of the eruption there was no instance of involvement of the mucous membranes. Since it has been proved that the active principle is not volatile, the cases of people who claim to have been poisoned by merely going into a vicinity where the plant happened to grow, are best explained by the supposition that insect carriers are responsible. The following conclusions are drawn:

1. There is a variability in susceptibility in different persons.
2. There is evidence pointing to the variability in the susceptibility of a given person.
3. The time required for the onset of symptoms in 19 clinical cases in which reliable data were obtained was from 5 hours to 8 days.
4. The eruption may spread over the body, without conveyance of the poison from the initial lesion through the agency of the hands or clothing.
5. The serous exudate from the vesicles plays no part in spreading the eruption to other parts of the body.
6. There is no evidence of total insusceptibility.
7. It is probable that the poison may be conveyed through the air by insects, rather than by dust or pollen.

BREAKING OF THE HAIR.

R. Sabouraud² states that while it is easy to recognize the cause in the larger number of cases of breaking of the hair, or trichoclasia, in a certain number it remains obscure. The most beautiful hair is admittedly encountered in young girls of from 12 to 16 years, and it is only after this age that the hairs begin to break. Sabouraud distinguishes three types, first simple trichoclasia, a transverse fracture of the hair, without the preceding occurrence of any node at the point of breaking. In trichorrhexis, on the contrary, there appear from one to three grayish swellings along the free ends of the hair, which are the points of fracture, and here the hair is split up into fibrils. When the breakage has taken place the ends of the broken hairs take the form of a broom, and this condition is called trichoptilosis. Oftentimes these three types or stages may be seen in the same head of hair, and occasionally in great numbers. It has been believed that this affection is preëminently an oriental one, and especially prevalent in Constantinople, the cause being a parasite. It has been further asserted that the fact that the false hairs of the same head may be equally affected is a proof of the parasitic etiology. Hence an active anti-parasitic treatment, without favorable result, the rule being that the affection once established, progresses and never disappears. This is an entirely wrong view, according to

Sabouraud, who maintains that the treatment is exactly the reverse of that indicated, since the strongly alkaline soaps used remove the oil and add to the fragility of the hair. He considers the parasitic theory a wrong one, and that the trichoclasia is of traumatic and artificial origin. Besides the shampoos, curling, "permanent waving," dyeing and bleaching contribute to the bad effects. Sabouraud speaks vigorously against the recent practice of permanent wave, having seen dozens of cases in which the hair was brittle, broken and covered with nodes after the procedure, and a number of cases in which the hair was permanently ruined. The proper treatment of these conditions is cutting the hairs beneath the point where they are affected, avoiding the causes above enumerated that have been responsible, and especially the shampooing with alkaline soaps.

In résumé Sabouraud affirms that trichorrhexis nodosa, and the simple trichoclasias represent in no sense a disease of the hair. It is owing to the procedures of the coiffeur that the hair is made susceptible to various sorts of traumatism, especially those produced by irritating lotions and soap washings, by dyeing and bleaching, curling and waving. Besides these cases, which are of daily occurrence, there are certain cases of spontaneous trichorrhexis of the mustache, of trichoclasia *en plaques* of the hair without any perceptible lesion of the skin, and also some instances of trichoclasia *en plaques* on thickened, dry, and pruritic skin, which are quite rarely met with.

PEMPHIGUS FOLIACEUS FROM ARSENOBENZOL.

Nicholas and Massia³ have observed three instances of this affection, which is an unusual occurrence among the large number of forms of cutaneous disturbance due to the administration of arsenobenzol. Moist lesions are very common, and the generalized lesions are not rare, but for the most part one sees exfoliative erythrodermata with redness and desquamation.

Pemphigus foliaceus seems from these observations to appear after the last, and to be preceded by a simple erythema which gradually extends, becomes infiltrated and squamous and is followed by the appearance of vesicles and bullae which open as soon as they are formed. Hence erythema, slightly squamous, more or less pruriginous and situated especially in the folds and on the neck, appearing during the course of treatment with arsenobenzol, should give immediate cause for alarm. The evolution is rapid and in a few days the symptomatic picture is complete. The scales are always very abundant, and the exudation more or less abundant. There are no mucous membrane lesions, nor is the scalp affected. There is no marked rise in temperature, and no notable lesions of the internal organs, except a nephritis observed in one case. There is much prostration, sometimes delirium, and always anorexia.

This symptomatology is much like that seen in the ordinary case of pemphigus foliaceus, but there is much difference in the evolution of the arsenobenzol cases. In the ordinary case of pemphigus foliaceus the duration is of months and years and the affection is very often fatal; whereas in the arsenobenzol cases the evolution is much quicker, and healing of the cutaneous lesions is the rule. In the writers' second case, it is true, there was a fatal ending, but this did not occur until the skin lesions were almost wholly healed, and the case was complicated by a gangrene of the right foot with arteritis, which they are not able to assert to have been of arsenical origin, although they cannot exclude this cause. In any case pemphigus foliaceus of arsenobenzol origin is a dermatosis of less gravity than the ordinary form and its evolution is shorter, and this is true also of the other cutaneous types from this cause. As to the pathogenesis of these cases, the writers think that anaphylaxis may be at once eliminated, on account of the tardy appearance of the eruption, its irregularity and the number of arsenical injections, nor do they consider that it can be due to a latent infection. They incline to the view that there is a true arsenical intoxication. Perhaps there is a cumulative intoxication caused by a perversion of functioning by the organs which should eliminate the arsenic, particularly the liver. The treatment of the cutaneous lesions is in the main prophylactic. In the course of treatment by arsenobenzol, the attention should be especially arrested by the appearance of more or less marked erythema, or of eczematous lesions of the folds, and the treatment then promptly suspended before the process has progressed to the production of more serious lesions.

PSORIASIS AND ITS TREATMENT.

Several papers on this subject were read at the meeting of the American Dermatological Association held on June 2-4, 1921. Jamieson⁴ of Detroit related the results of his experimental work on blood nitrogen in psoriasis. The investigations of Schamberg and his associates have shown that persons suffering from psoriasis are capable of retaining nitrogen to a remarkable degree, much greater than is observed in any other condition. They are therefore inclined to believe that a high or even relatively high nitrogen diet has a baneful influence on psoriasis, and that there is little doubt that a low nitrogen diet has a favorable influence on the skin lesions. Their ingenious explanation is that the epithelial cells of the skin keep on growing as long as there is available protein in the system, and when this is exhausted their growth is checked. Hence if the patient is kept on a low protein diet this point of exhaustion is hastened, while a high protein diet stimulates the epithelial cell growth and delays improvement. Jamieson firmly believes in the metabolic origin of psoriasis. In analyzing the many different reports of psori-

asis from all parts of the world, it is seen that there are many varied conditions preceeding an attack of psoriasis, but that all are conditions that may produce a profound disturbance in the body metabolism. These disturbances may also cause remissions of the psoriasis, and therefore it seems that "psoriasis is a definite clinical dermatologic manifestation, due to faulty metabolism induced by many underlying conditions and manifesting itself in an incomplete keratinization of the dermal cells."

In Jamieson's investigations 45 cases of psoriasis were examined, some of them having only a few nitrogen determinations, others returning regularly at monthly intervals. Some of these cases were extensive and severe, others showed only a small number of lesions, but were of a rebellious type. The conclusions drawn from these investigations are that it is impossible to state that the increase or decrease of the lesions in the cases examined corresponds with an increase or decrease of either total non-coagulable nitrogen or uric acid. The uric acid curve was at its low point during the warm months of summer and early autumn, and the total non-coagulable nitrogen curve is also similar in this respect.

With regard to the treatment of psoriasis, Sutton⁵ of Kansas City relates his results with a method employed during the last two years, which he began to use as a war measure in order to get rid of the eruption as quickly as possible in candidates for the aviation corps. The method is to be used only in the quiescent stage and not during the acute or eruptive periods. Careful general physical examination should precede the treatment and nephritis or a serious heart lesion would debar it. In 42 cases he has had good results. The method consists of the injection of a foreign protein (in the form of an autogenous colon vaccine) and the liberal use of a chrysarobin ointment, much stronger than that commonly applied (20 per cent.). Sutton states that he has been gradually discarding, for several years, the more complicated formulas in the local treatment of psoriasis and depending more and more on chrysarobin. He has found by experimentation that a 20 per cent. mixture of chrysophanic acid and petrolatum can be safely applied to one-third or even more of the entire cutaneous surface without serious local or constitutional disturbance. The ointment he applies by means of a stiff toothbrush twice a day, the patient being kept in bed and the eyes bandaged at night, and he has found seven days a sufficient time on the average. Afterwards he gives arsenic.

At the same meeting O. H. and H. R. Foerster⁶ of Milwaukee recorded their observations on a new method of Roentgen-ray therapy in psoriasis. The method is that described by Walter Broek of Kiel University and originated in an observation by Broek that a child with psoriasis, especially of the head and chest, de-

veloped an extensive and severe outbreak while under treatment with Roentgen-rays for local effect. Experimentation instigated by this led Broek to the conclusion that irradiation of the thymus gland, with careful attention to its surface topography, leads to the disappearance of the lesions of psoriasis in from one-half to two and one-half months under certain conditions. An overdose was found to be followed by an active development of the affection. Broek explained the action of this method of treatment by assuming that psoriasis is associated with hypofunction of the thymus, which can be temporarily overcome by stimulation with Roentgen-rays. The Foersters' observations concerned 23 patients and extended over a period of five months. Eleven patients were given a second dose after two months, and two received a third dose. The original paper should be referred to for the details of the treatment. In most of the cases that responded to treatment there was a slight elevation and congestion of the lesions within a few days, and after 8 to 12 days the lesions involuted rapidly; in several cases large thickened plaques of long standing disappeared completely in four weeks. In 13 of the 23 cases the condition was at least markedly improved. In eight most of the eruption disappeared entirely; in five there was complete clearing up, three of the five showing a recurrence after varying interval. The writers, as a result of their investigations, regard this method as one that produces favorable, although apparently temporary, results in a sufficient number of cases to warrant its position as a practicable procedure in treating psoriasis.

In the discussion that followed the reading of these papers, Dr. G. H. Fox of New York emphasized the superiority of the old chrysophanic acid that was in the market 40 years ago, to the chrysarobin of today. It was the prevailing opinion that the etiology of psoriasis is still as obscure as ever. Also that a low protein diet often exerts a marked influence on an eruption of extensive psoriasis. Schamberg stated that he had never claimed that a metabolic error was the cause of psoriasis, but that diet has a most important bearing on its course. He thinks that no remedy, either external or internal, will exert a favorable influence in the stage of eruptive activity. We must bend our energies to converting an active into a quiescent psoriasis, and he considers that two methods are capable of bringing this about: a low protein diet and autoserum injections. When the eruption has become quiescent it may disappear under various internal and external agencies.

OIL FOLLICULITIS.

Page and Bushnell's⁷ paper is concerned with the skin affection due to oils, and particularly with those due to the use of machine oils, their interest in this subject being aroused by

an investigation undertaken to find the cause of an epidemic of furunculosis among those employed in a machine shop. As in the case of machine oil, the disturbance seems to be largely due to a mechanical plugging of the follicles, followed by inflammation and infection, and they therefore suggest the name oil folliculitis. After a comprehensive historical review of skin affections produced by oil, the type of lesions, and influences predisposing to infections of the skin, the writers declare that very little attention has been given to the bacteriology of oils. The bacillus subtilis and the usual pus-forming organisms have been reported found. The writers in their experimental work isolated the following organisms: Type I *Bacillus aerogenes*; Type II *Bacillus coli communis*, both of fecal type; also Type III, which was a Gram-negative, non-spore forming, active motile rod, very similar to the liquefying *Proteus vulgaris* strains. The following is a summary of the writers' conclusions:

1. Oils of all types are likely to produce skin affections if they come in contact with the skin for some length of time.

2. The most serious skin diseases are probably due to the oil acting as a carrier of infectious material from one individual to another.

3. Individuals of the most cleanly habits are, generally speaking, least liable to skin affections due to oils.

4. Special care should be exercised by workmen on cutting machines to avoid contamination of the oil, especially by saliva.

5. Individuals having skin diseases should be transferred to some other type of work.

6. While oils may be placed on the market in a sterile condition and free from dust, etc., they will not long remain so after being put in use.

7. By heating the oil to 70° C. for 20 or 30 minutes it is possible to destroy all the dangerous pathogenic bacteria likely to be present.

8. It would seem very desirable to use oil which has been rendered free from dust, and especially from particles of metal.

9. Workmen should not exchange waste and rags used in cleaning their hands, and should not bathe their hands in the oil.

10. Clothing saturated with oil should not be worn, especially if there is an epidemic of skin diseases among the workers.

INJURIOUS COMBINED EFFECT OF ROENTGEN-RAYS OR RADIUM AND TOPICAL REMEDIES.

MacKee and Andrews* point out that physicians, even those who do not employ x-rays and radium, should understand the dangers that attend the association of these forms of treatment with irritating topical applications.

Irradiation, whether or not followed by visible reaction, increases the sensitiveness of the skin to irritating agents. Small doses of Roent-

gen-rays or radium combined with strong local irritants may result in severe injury, as may also large, although safe, doses of Roentgen-rays or radium combined with mild topical irritants. But intensive irradiation associated with strong topical irritants is the combination most likely to produce injurious results. Ordinarily the skin, when there has been no visible reaction or permanent injury, will react to topical remedies in one month. If there has been a reaction the skin is likely to remain sensitive for months or years, and in cases where there has been permanent injury, telangiectases, atrophy and scarring may result. Fractional irradiation is cumulative in effect, and the degree of hypersensitiveness of the skin will depend on the size of the individual doses and the interval between the applications.

The topical application of stimulants, irritants and caustics makes the skin hypersensitive to irradiation, the degree depending on the strength of and method of applying the topical remedy, and also on the time interval between the application of the topical remedy and the irradiation. Any drug that is capable of causing an inflammatory reaction in the skin may make it more susceptible to irradiation. Among these may be mentioned chrysarobin, scarlet R medicinal, iodine, mercury, resorcin, tar, sulphur, salicylic acid, etc. The writers assert that they cause the least trouble when used as powders, more when in solution, and the most as ointments. Caustics, as acid nitrate of mercury, zinc chloride, nitrate of silver, etc., may increase the effects of irradiation, as well as ultraviolet light and refrigeration, especially the latter. The combined effect of irradiation and topical stimulants, irritants or caustics produces a reaction that is, as a rule, indistinguishable clinically and pathologically from radio-dermatitis.

After citing eight cases in illustration, the writers come to the following conclusions: Roentgen-rays and radium may make the skin hypersensitive to stimulating, irritating and caustic agents locally applied. As a rule the skin will react normally to topical remedies in a month; but if there has been a reaction the hypersensitiveness may endure for several months, and if the skin has been permanently injured, the hypersensitiveness may be detected for a year or two, or even indefinitely. Stimulating, irritating and caustic remedies, when locally applied, produce hypersensitiveness to Roentgen-rays and radium for about a month. If the skin reacted to the local remedy, increased radio sensitiveness is the rule for one month after the complete disappearance of the reaction. A physician about to prescribe topical applications of an irritating nature should first ascertain whether the parts to be so treated have been recently irradiated or are to be irradiated. A physician about to apply Roentgen-rays or radium to a patient should first ascer-

tain whether irritating topical remedies have been recently used; and the patient should be cautioned against additional local treatment without the knowledge and consent of the physician who applied the Roentgen-rays or radium.

UNUSUAL HERPES ZOSTER.³

Corson and Knowles of Philadelphia state that herpes zoster has been reported to occur in between one and two per cent. of all diseases of the skin, usually nearer the smaller figure, and is pretty constant both in Europe and in America. In certain periods it is seen with great frequency, so that it amounts almost to an epidemic; at other times it may be very seldom met with. There are certain vagaries and interesting atypical cases occasionally seen.

By some a relationship of this affection to varicella has been discussed, by others the meaning of the rare general eruption accompanying it, as well as the exceptional paralysis coexisting with the outbreak, a bilateral distribution, and its occurrence on the same side at a distance. The last is quite uncommon. In a few cases cranial and spinal nerves have been affected at very distant places.

Two cases are reported: one, that of a housemaid of 50 years, whose mental processes were confused and whose speech was slurred. The superior rectus and the elevator of the upper lid were paralyzed; she was by turns delirious or stuporous, and it was thought that she had bulbar lethargic encephalitis. She had been taking Fowler's solution for about five weeks when she developed a zoster over the posterior aspect of the right thorax, and also on the right side of the forehead. In this case the arsenic may have been a causative factor, as there are many well-known instances of zoster following the ingestion of this drug. A motor paralysis is a more frequent occurrence with zoster. Greenough saw it but twice in 255 cases of this affection.

The second case is that of a man of 26, who presented the eruption on the left side of the face and also in the supraclavicular, infraclavicular and suprascapular regions of the same side. There was also a left facial paralysis, which was said to have appeared at the same time as the eruption. The patches on the face were situated in front of the ear, and, lower, over the ramus and body of the mandible in the area supplied by the third cervical root, while the eruption over the clavicle was entirely in the area innervated by the fourth cervical root.

The writers' conclusions are that in the cases of herpes zoster associated with facial paralysis, the geniculate ganglion has uniformly been found inflamed, when examined. The sensory ganglions affected in this case were the third and fourth cervical. While it is customary for only one ganglion to be involved, Hunt says: "It is probable that two ganglions are occa-

sionally affected together. From clinical observation this seems particularly liable to occur with the second, third and fourth cervical." In Hunt's table of types of eruption found in the 80 cases associated with facial paralysis, only one was of the combined facial and occipitocollaris distribution.

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Book Reviews.

The Venereal Clinic: The Diagnosis, Treatment and Prevention of Syphilis and Gonorrhoea. By several writers. Edited by Ernest R. T. Clarkson. Wm. Wood & Co. 477 pp. Price \$6.50.

This handbook of venereal disease, by a number of English writers, consists of a Section on Syphilis by A. Malcolm Simpson, Henry C. Semon and James H. Sequeira; a Section on Gonorrhoea in the male by E. R. T. Clarkson, W. Wyndham Powell and A. Malcolm Simpson; a Section on Gonorrhoea in the female by M. Rawlins; one on Gonococcal Affection of the Eye by Alex. Bruce Roxburgh; one on Bacteriology by Philip Panton; and Part Two, on the Sociological and Administrative Aspects of Venereal Disease, by E. R. T. Clarkson and H. S. Q. Henriques.

Beyond a doubt the medical profession in England is handling the venereal disease question with more candor and serious thought than is shown by medical men in this country. Perhaps the problem is more acute in England.

This book reflects the British attitude; it is original, honest and fully awake to the broader relations of venereal disease. One finds in it, not a hackneyed account of the period of incubation and prevailing symptoms, but a full discussion of those mooted questions in diagnosis and treatment upon which there is still divergence of opinion. It is a book which can be read with profit even by experienced venerologists.

Part two deals with venereal disease in the community, the prevention of venereal disease, adjuvant societies and institutions, the relation of the medical man to patients in a venereal disease clinic, and legislation and the practitioner. Valuable information upon these general aspects of venereal disease is presented in concentrated form. The book should be very helpful to social workers, public health officials, and to all medical men who have anything to do with venereal disease.

Aids to Bacteriology, by Wm. Partridge. Fourth Edition, Wm. Wood & Co., New York.

This is a small compendium of bacteriology, without particular merit. It is not illustrated. The size of the volume permits it to be carried in the pocket, and for that reason it might be useful for students engaged in cramming for an examination. The work could be duplicated by taking any good text-book of bacteriology and condensing it, and it has naturally the defects which go with such a process. However, in Chapters 20, 21 and 22, we have sixty-two pages devoted to the bacteriology of food-stuffs and water, and disinfection and disinfectants. This portion of the book approaches excellence.

Hyperpiesia and Hyperpiesis. A Clinical, Pathological and Experimental Study. By H. BARRY SHAW, M.D., F.R.C.P., Physician to University College Hospital, etc., etc. Dedicated to Rt. Hon. Sir Clifford Allbutt, Oxford Medical Publication, Henry Frowde and Hodder & Stoughton, London, 1922. Pp. 191 with illustrations, tables and charts.

As its title implies, a critical study of hypertension, its nature, origin, relation to nephritis and treatment based on clinical and postmortem evidence of 50 fatal cases exhaustively studied.

The introduction carries a brief discussion of some of the prevalent theories and a statement of the problem. Section one gives clinical history, gross pathology and microscopic kidney pathology of the 50 cases used as a basis of the study. Section two follows with a careful analysis of clinical details. Section three considers the origin of hyperpiesis and ideopathic cardiac hypertrophy. The fourth section is somewhat technical; describes the experimental study of the search for a pressor substance which acting through the blood stream could cause a rise of blood pressure. Section five, the last, has to do with conclusions and therapy.

As an example of careful and painstaking research, orderly presentation, and sane discussion of present theories and known facts in relation to the author's work, it is hardly possible to say too much in its commendation. As an example of fine book making and in its illustrations it is equally good.

On the whole one of the really worth while books of the year, particularly to one interested in the problems of internal medicine.

The Treatment of Ordinary Diseases. From the Note Book of an Old Practitioner. By BEVERLEY ROBINSON, M.D. (Paris), Emeritus Clinical Professor of Medicine at University and Bellevue Medical College, N. Y. Pp. 130, New York American Medical Publishing Co.

Rather pleasant little book discussing in a conversational and non-technical manner most of the common ailments from the ordinary cold

to Colles' fracture with an almost startling superficiality.

It is for its interest as "the note book of an old practitioner" rather than a text-book on "the treatment of ordinary disease" that its value, if it has any value, lies.

While the man with well grounded opinions in medicine may have a pleasant hour or two, a book which recommends that acute middle ears be not opened but allowed to perforate; that declares the operation for acute appendicitis; that regards digitalis as no particular value but teaches the great value of strophanthus and who recommends antitoxin in the treatment of diphtheria but whose only advice as to dosage is to avoid too large a one is hardly a book to put into the hands of a medical student.

In short in the opinion of the reviewer it will find few appreciators except those who may have known and loved the author.

Disease of the Thyroid Gland. ARTHUR E. HERTZLER, M.D., F.A.C.S., St. Louis; C. V. Mosby Co., 1922.

This book, as the preface states, represents an effort to bring before the public the results of studies of a particular disease in a small country hospital. The material collected has been carefully studied and compared with the clinical history and each subsequent examination of the patient has been checked by a re-examination of the specimen and slide. The author reaches the conclusion that convincing evidence is obtained to indicate the association of the activity of the interstitial cells with a definite clinical type of thyroid intoxication.

The subject is presented from the viewpoint of a clinical surgeon dealing practically with the thyroid problems. The symptoms of thyroid disease and accepted methods of treatment are described at considerable length though the author fails to mention some of the newer details of treatment. For example, under the head of vocal cord paralysis there is no mention of the operation. Ventriculocectomy, recently recommended by Chevalier Jackson for the relief of abductor paralysis. Likewise under tetany there is no discussion of the subject of parathyroid therapy, and under myxoedema no mention is made of the method of checking the administration of thyroid extract with estimations of the basal metabolic rate.

One experienced in thyroid surgery cannot fail to be in accord with the statement that "goiter in the adult is a dangerous disease and unless cured tends to destroy the life of the patient. The so-called innocent goiters, which frequently exist for ten to twenty years, usually sooner or later kill by undergoing toxic or malignant degeneration."

In his discussion of treatment the author makes a statement which is the basis of all success in thyroid surgery: "It is necessary that every therapist follow his cases and construct

for himself a series of experiences, for by this means alone can he develop the niceties of judgment so necessary to the successful treatment of goiter."

In the matter of anaesthesia the author states his preference for local anaesthesia, admitting his lack of experience with nitrous oxide. The almost parallel mortality obtained in different thyroid clinics where each uses a different type of anaesthesia, ether, local, gas oxygen and gas oxygen analgesia, should, in the opinion of the reviewer, lead to the selection of the anaesthetic which is most comfortable for the patient and least limiting to the operator.

The reviewer's experience has not been in accord with the following statement made in the discussion of Basal Metabolism: "Unfortunately the test is a difficult one to make properly and errors of technique too often come in to confuse results." Nor does the reviewer agree with the author's opinion that "a good laboratory man may be of much help to the inexperienced clinician. To the experienced surgeon the aid is relatively little."

As previously stated, the book presents the subject from a practical and generally sound point of view. It is well arranged, with numerous references to the literature and written in a very readable form. Its careful perusal would do much to clear up the confusion concerning thyroid diseases which undoubtedly exists in many medical minds.

Current Literature Department.

ABSTRACTORS.

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JOHN S. HODGSON	WILDER TILSTON
FRED S. HOPKINS	BRYANT D. WETHERELL

HYPERTHYROIDISM.

MURRAY, G. R. (*British Medical Journal*, June 10, 1922) divides hyperthyroidism into three groups:

1. Simple hyperthyroidism.
2. Toxic adenoma of the thyroid gland with hyperthyroidism.
3. Exophthalmic goitre or Graves's disease.

He devotes himself particularly to the treatment of the third group—exophthalmic goitre.

The advantages of operative treatment are:

1. The saving of time by the rapid reduction of the hyperthyroidism and relief of the symptoms.
2. The diminution of the risk of irreparable damage to the heart in the form of the chronic myocarditis which develops in severe and in prolonged cases.
3. The complete and rapid recovery in some cases.

The disadvantages are:

1. The risk to life.
2. The uncertainty of the ultimate result owing to the difficulty in determining the right amount of the gland which should be removed in each case. For example, one of my cases had two partial thyroi-

dectomies performed, but at the end of ten years still showed marked symptoms of the malady, which finally subsided under x-ray treatment.

3. The tendency to recurrence at the end of a year. He believes that in any case medical treatment should have a full trial for six months. [J. B. H.]

THE DIAGNOSTICAL VALUE OF GASTRIC FRACTIONAL TEST MEALS.

LEMBERTON, H. S. (*British Medical Journal*, July 1, 1922) discussing the value of fractional test meals in diseases of the stomach concludes as follows:

1. The acidly curves plotted from fractional test meals are of some value in obtaining knowledge of the factors which modify the acidity.
2. Alterations in these factors bear some sort of relation to gastro-intestinal lesions; hence the acidity curves may throw some light on these lesions.
3. These curves seem divisible into at least six types of varying diagnostic value.
4. By comparison with other methods the fractional test meal is at least admissible as an aid to diagnosis. [J. B. H.]

PULMONARY EMBOLISM AFTER OPERATIONS.

GORDON-WATSON (*The Practitioner*, June, 1922) finds in the surgical post-mortem records of St. Bartholomew's Hospital three cases of pulmonary embolism out of 594 during the years, 1912-1914, at an average age of 52, and nine cases of pulmonary embolism out of 538 post-mortems at an average age of 60 during the years, 1919-1921.

He then discusses the pathology of pulmonary embolism and its occurrence and discusses at great length the factors in its causation. He is a strong opponent of purging a patient prior to operation and believes that the Trendelenburg position and other abnormal positions of the body during operation may be factors in causing such pulmonary emboli.

[J. B. H.]

THE BONY FEATURES OF POSTERIOR CONGENITAL DISLOCATION OF THE SHOULDER.

TODD, T. W. (*Annals of Surgery*, July, 1922), writes as follows: Posterior congenital "dislocation" of the humerus, as illustrated in the Hamann Museum at Western Reserve University, provides the following information:

1. It is of the subacromial type and differs from pathological dislocation in the fact that the humeral head never leaves the glenoid surface.
2. It results from a mal-development confined to the scapula and not affecting the humeral head. The mal-development is in the dorsal part of the scapular neck, so that the glenoid surface is rotated on to the dorsum of the blade. Accompanying this is a drooping of the acromion over the shoulder.
3. Congenital "dislocation" is a high grade of the deformity just described, which, however, may be of slight development and unilateral or bilateral.

4. The condition was found in three white males only among a random sequence of 730 complete human skeletons distributed as follows: 489 white males, 66 white females, 143 negro males, 32 negro females.

5. In the collection just mentioned there is no case of congenital dislocation of femur or radius.

6. Posterior congenital dislocation of the shoulder is not a true dislocation since the humeral head never leaves the glenoid surface. It is undoubtedly "posterior" and all the evidence goes to show that it is really congenital in occurrence since it makes its appearance coincidently with the original scleroblastic formation of the scapula.

7. There is no inherent reason why this postural deformity should not be associated sooner or later with a nerve lesion. [E. H. R.]

TUMORS OF THE KIDNEY IN INFANCY AND CHILDHOOD.

MIXTER, C. G. (*Annals of Surgery*, July, 1922), presents a very interesting article based on a fairly large experience at the Children's Hospital in Boston with this type of case. His article is of much interest and considerable value. He emphasizes the frequency of malignant tumors of the kidney region in infancy, generally insidious in onset, and the strong tendency to recurrence, so that cure can only be expected by very early diagnosis and surgical removal. The confusion of kidney tumors with inter-abdominal tumors in infancy and childhood is also strongly emphasized. [E. H. R.]

TRANSPLANTATION OF THE ENTIRE FIBULA IN CASES OF LOSS OF THE TIBIA FROM OSTEOMYELITIS.

MACAUSLAND, W. R., AND SARGENT, A. F. (*Annals of Surgery*, July, 1922), present a very well illustrated article on this interesting subject. They describe the operative technique and present some very interesting x-ray plates. [E. H. R.]

OBSERVATIONS ON THE TREATMENT OF ACUTE PERFORATIONS OF THE STOMACH AND DUODENUM WITH REFERENCE TO GASTRO-ENTEROSTOMY.

WIELENSKY, ABRAHAM O. (*Annals of Surgery*, July 1922), writes as follows: "In view of all of the facts outlined in this communication it seems to me that the most rational procedure in the presence of an acute perforation is to simply close the perforation. In a certain number this would be all that would ever be necessary. In others a course of medical treatment might be valuable before resorting to any extensive surgical operation. In still others, in which the continued presence or recurrence of post-operative symptoms would make it advisable, further surgical measures could be undertaken in the security of conditions not burdened with the risks of any emergency and with the added advantage of more prolonged pre-operative study and planning. Better and more adequate measures can thus be more securely employed." [E. H. R.]

THE FATAL OUTCOME OF CERTAIN CASES OF STAPHYLOCOCCUS INFECTIONS OF THE FACE AND LIPS.

MARTIN, W. (*Annals of Surgery*, July, 1922), presents an interesting but not very concise paper as the result of thirty years' experience with a fairly large number of these desperate cases. He does not draw any definite conclusions as to treatment, but speaks of various forms in an interesting manner. He emphasizes the often overlooked fact that thrombosis of the cavernous sinus often follows infections of the lip and that this is the cause of the fatal outcome and is of necessity most difficult to deal with. The use of any trauma to the infected area, such as squeezing or other efforts to express infectious material, should be strictly avoided. Attempts at aspiration should also be avoided. Ligation of the jugular is sometimes indicated in selected cases, but the results are not encouraging. The author reports eight case histories in detail and appends a very good bibliography. [E. H. R.]

HAEMANGIOMAS OF THE GASTRO-INTESTINAL TRACT.

JUDD, E. S., AND RANKIN, F. W. (*Annals of Surgery*, July, 1922), write as follows: Angiomas of the gastro-intestinal tract are rare and may simulate malignant conditions. When they occur in the stomach, they are generally found on the posterior wall in the common location for malignant conditions.

Similar to other benign tumors of the stomach, angiomas are occasionally found in young persons. There may be no definite gastric upset, the main

complaint being weakness and epigastric discomfort. The acid values of the gastric secretion are generally normal and the general condition of the patient is usually much better than that of the patient with a similarly located malignant lesion.

Angiomas of the stomach, while generally small, may grow to a very large size. They are usually soft and covered with mucous membrane. Histologically, they are composed of fine blood-vessels and masses of fibroblasts and endothelial cells.

At the Mayo Clinic three patients with angioma of the stomach and one with angioma of the duodenum have been operated on in the past two years; two of the patients were young, and two were of cancer age. The advanced age of these two patients and the Roentgen ray findings, similar to those in malignancy, suggested inoperable malignant lesions.

In all cases the tumor was removed and operation was followed by an excellent immediate and late result. [E. H. R.]

NEURORECURRENCES FOLLOWING TREATMENT WITH ARSPHENAMIN.

ZIMMERMAN, ERNEST (*Archives of Dermatology and Syphilology*, June, 1922), says: From the opening of the Syphilis Clinic of the Johns Hopkins Hospital in 1914 to September 1, 1921, 7005 syphilitic patients have been treated. Of these, 1400 were primary or early secondary cases. In this group, neurorecurrences have occurred in 23, or 1.64 per cent. Sixteen additional cases are included in this report, comprising patients who received initial treatment elsewhere and had already developed symptoms of neurosyphilis at the time of their first visit to the clinic, and those seen in the Syphilis Clinic of the Baltimore Eye, Ear, and Throat Charity Hospital.

Dr. Zimmerman tabulates the sum of these cases, which is 39, and discusses their symptomatology, genesis, and prognosis. He finds that pathologically there are two types: a diffuse meningovascular process, and a process limited to one or more focalized lesions. In the former the spinal fluid is always abnormal, in the latter it may show marked abnormality or it may be entirely normal. Prophylaxis of such lesions depends on thorough mercurial treatment. It seems immaterial whether mercury is administered during or immediately following a course of arsphenamin.

INJURY OF THE LIMBS DUE TO BACK-FIRE.

BIZARRO, A. H. (*Annals of Surgery*, July, 1922) draws the following conclusions:

1. The lower third of the radius and ulna is the commonest seat of back-fire fracture, and the carpal bones the next common.
2. The crack through the epiphyseal line of the radius is the commonest type of single bone lesion.
3. The ulna styloid tip and radial epiphyseal line are the commonest type of double bone lesions.
4. The scaphoid is the commonest carpal bone involved.
5. In individuals under twenty years of age the diagnosis of ulna styloid fracture is more difficult owing to the common occurrence of irregularities of ossification.
6. In twenty-five per cent. of the cases of the series the injury of the wrist was limited to the soft parts.
7. The upper end of both radius and ulna are occasionally the seat of fracture.
8. The age of the individual has no bearing on the fracture being at the epiphyseal line.
9. The great bulk of these injuries is of the indirect type.
10. The prognosis is usually good.

[E. H. R.]

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NUTRITION AND GROWTH IN CHILDREN.

The Great War had many unexpected by-products. Some of these have proved to be of great importance in advancing the public health movement. For example, it is seldom that a nation has received a greater shock than that which came to America when the figures were published showing the armies of young men who had been rejected from military service on account of physical unfitness.

It was very natural to turn from this startling picture to the growing children in order to see what conditions are found among them. Even the superficial results secured by understaffed and poorly equipped systems of school medical inspection are found to furnish striking confirmation of the discoveries that were made through the army examinations.

Many physicians, teachers and social workers have long been alarmed by the numbers of children whom they have found to be in need of care and yet not sick enough to require hospital treatment or to be put in bed. These children are clearly under par and unequal to the day's work and enjoyment that belong to them at this time of life. Open air and other special class rooms as well as school lunches have been provided for them. They congest the clinics and are labelled "Run down," "No appetite," "General debility," "Needs a tonic," and yet nothing is done for them. There is nothing

definitely known to be the matter with them and yet everything about them seems to be wrong.

Fortunately there have been clinical studies in operation for a number of years which have blazed a path through this obscure situation. The results of these studies, however, up to the time of the war, had made comparatively little impression upon the public or even upon the members of the medical profession. The condition was sensed only in part—the means of correcting it were not yet appreciated and it was all too easy to fall back upon the vague hope that although a particular child did not seem to be in fit condition "he would outgrow it!"

It had been taken for granted in many situations that the causes of malnutrition were known and understood. Popular opinion favored poverty and insufficient food as the most reasonable explanations, but in nutrition clinics investigation of thousands of children showed that these causes, like many others commonly assumed to be significant, are only secondary and fail to explain the greater number of cases. Many causes have been discovered, but the great majority were found to fall into five fundamental groups: (1) physical defects, especially inflammatory processes of the naso-pharynx; (2) lack of home control; (3) over-fatigue; (4) faulty food habits, with improper and insufficient food; (5) faulty health habits.

It is also clear that although many symptoms are found, practically all of these children show a common characteristic of insufficient body weight in proportion to height. The next step has been to find the limits of variation in weight which mark out the boundaries of what might be considered a zone of weight safety. Clinical observation was first concerned with an average weight line determined by weighing and measuring some hundred thousand American children. Ten per cent. underweight for height was taken as a trial standard, but it was very soon evident that this basis allowed many children needing care to be included within the normal zone. Individuals were observed as they passed beyond this limit and remarkable correlations were evident between changes in weight and various physical and psychical conditions. These studies placed the lower limit of weight safety at about seven per cent., which is practically a year's growth, and it has been found that no child who is habitually this amount below the average fails to show clearly other evidences of malnutrition.

This method furnishes a convenient way by means of which at least 90 per cent. of the children needing care for malnutrition can be identified. Further work upon the causes has developed a nutrition program which has proved applicable to the varying conditions of city and rural life and is in successful operation from Labrador to the Gulf of Mexico and from Boston to Honolulu. An important feature of this nutrition program is the use of the class method

which brings into coöperation the four forces which are essential in dealing with malnutrition: (1) the home; (2) medical care; (3) the school, and other social agencies; (4) the child's own interest. This class or group method for the treatment of malnutrition, as originated and developed by Emerson in this city, has been characterized by Holt as "epochal in the treatment of children."

President Eliot has recently emphasized the necessity of providing for experimentation by independent, private organizations free to work out new lines of attack and development which can be taken over by the state and local community after successful demonstration has proved that they are advantageous. A national society, Nutrition Clinics for Delicate Children, with headquarters in Boston, has made demonstration in leading cities in every section of the country of a program by means of which a large proportion of these malnourished children can be brought back to normal health within a few months' time with such food and health habits established as will keep them there. The school authorities and other community forces are extending the work so that it may reach all children.

But the responsibility of the medical profession does not stop at this stage of development. There are cases to be detected among children who are temporarily malnourished without showing any loss of weight as yet. There are also individuals who require investigation for a period of months and even years before the hidden causes of their malnutrition are disclosed. With proper organization a physician can keep three-quarters of the members of a class of twenty gaining steadily by the expenditure of half an hour of his time each week, but the other fourth furnish a constant challenge to the best results that his training and experience have given him as well as contact with the most effective aids he can secure from specialists in many fields.

The next step in bringing this large proportion of our children of school and pre-school ages up to normal health conditions—a striking challenge to those who seek to forward preventive medicine—lies in providing adequate teaching of the subjects of nutrition and growth in medical schools.

Loss in weight taken by itself may be an early symptom of phthisis, appendicitis, pyelitis, sinusitis, chronic tonsillitis, and other inflammatory processes secondary to naso-pharyngeal obstruction. It is also a sign of such organic defects as deviated septum, intestinal adhesions, and reflex disturbances such as cardio-spasm and anaphylaxis due to protein sensitization. It may likewise be a symptom of toxemias secondary to focal infection, gastric and intestinal indigestion, overfatigue, bad air, lack of sunlight, drug habits and the deficiency diseases.

Physicians in general practice and even pediatricians have been slow to realize that malnu-

trition and failure to make normal growth are fundamental medical subjects. In consequence this large group of malnourished children, from whose ranks the daily total of more evident illness is recruited, is left to the tender mercies of school nurses, dietitians, social workers, and, to an increasing extent, the chiropractor and the osteopath.

Even a brief experience with the working of a nutrition program will show the fallacy of the common excuses made for neglecting this field and will convince the medical student that malnutrition is a serious medical problem which demands the skill of the best trained physician. Early diagnosis is the most valuable form of preventive work, and is as much a test of skill as is late diagnosis when the condition has progressed to a more serious or critical stage.

No pediatrician would fail to be concerned when an infant ceases to gain in weight and begins to fall away from normal standards, or when he shows pallor, flabby tissues and the least sign of deformity. Yet these symptoms pass unnoticed and uncorrected in older children when they have great significance during the entire growing period. Instead of discouraging the mother who is seeking an examination for her child, the physician should be trained in his college years to expect to lead rather than to follow in this important means of detecting pathological conditions. A great step will be taken in asserting the positive function of the physician when we may expect to have every child given a complete physical-growth examination each year during the period of his growth.

These examinations should be given in the presence of the child's parents and every effort should be made to help them understand the meaning of the defects which the examination discloses. The physician finds that one of the chief advantages of the nutrition class method is that by this means he has weekly opportunities to instruct mothers in the application of health education to conditions appearing in the group of malnourished children. It is in this direction that we must move until the excellent care now given to infants shall be afforded to the pre-school and school periods as well as to growing youth after his entrance into industrial pursuits and college.

The successful accomplishment of this nutrition work has shown clearly that the problem cannot be solved by means of any single line of attack. There must be a thoroughgoing community program, which means that medical service must be tied up closely with social and educational service—that is, with home and school. This will result in health education not only for the children but also for parents and public as well. To accomplish this end Nutrition Clinics for Delicate Children is holding institutes in various parts of the country with the purpose, on the one hand, of training physi-

cians, nurses, and health workers in the special medical and social technique required in the undertaking and, on the other, of securing the intelligent interest of parents and educational and health authorities, so that the work may be supported adequately and become a permanent factor in community health and life. Beginning in Boston, institutes of this kind have been held in ten states and from these as centers have reached practically every state in the union.

THE CURE OF DISEASES THAT HAVE RESISTED MEDICAL RESOURCES.

AND now comes Congressman Sproul and suggests that the government shall offer a prize of one million dollars for the discovery of the cure of any one of the following named diseases: Tuberculosis, pneumonia, cancer, epilepsy and dementia praecox. Without the honor of a personal acquaintance with Mr. Sproul, one may assume that the motive which prompted this suggestion was activated by sympathy for the hundreds of thousands of sufferers afflicted with these diseases and an appreciation of the economic burden on the nation imposed by disability and loss of productive human life. Thus far one may sympathize with the member of Congress, but distrust of his judgment is in order; for the suggestion of the appropriation of these large sums of money carries to educated physicians serious doubt as to the intelligence of the proponent. He may be a good politician, or even a statesman, in dealing with political problems, but he has gone far wide of the mark in his effort to cure these diseases.

This proposition suggests the thought that some persons have an exaggerated estimate of the value of money and a particularly poor conception of its proper expenditure. Some minds infer that the great accomplishments achieved through spending money in some ways warrant the expectation that if sufficient money could be used almost anything would respond to the magic touch of gold. This attitude is one of the unfortunate effects on those minds that have been dazzled by exhibition of the lavish use of money.

There are other features of such proposals which will arouse a feeling of indignation in the minds of most of our scientific workers, for although recognition of meritorious work and the conferring of a dignified honorarium are appreciated by all benefactors of the race, such an offer would not add one particle of energy to scientific investigation. As a rule, great discoveries in medicine have been made by persons possessed of vision and determination, actuated by altruistic motives and controlled by scientific minds. If a million dollars a year could be devoted to the support of those institutions in which research is already being carried on, the

investment would be more to the purpose. One may fear, on the other hand, that some impostor may prey on the credulity of the representatives of the government, as has been done, it is feared, in another country. Instead of stimulating valuable effort the exploiters of turtle serum or our later aspirant for fame, Abrams, and a host of other claimants would lay siege to the treasury, supported by affidavits and personal testimony. Any honest believer in any cure can submit evidence of his claim to impartial analysis and be sure of fair treatment.

Whenever the government is ready to appropriate millions to be used by scientists there will be found many opportunities for aiding existing reputable organizations. An honest ambition to benefit the race is commendable, but all efforts along these lines should be under the guardianship of well-trained minds, endowed with capacity for correct reasoning.

COMMUNICABLE DISEASES AND SCHOOL ATTENDANCE.

THE reports of Boards of Health for the ensuing two months will be of interest for, if the predictions which have repeatedly been made, that with the opening of schools the number of communicable diseases often show a marked increase, shall prove to be the rule, it will indicate that the health of the scholars has not been carefully supervised.

Parents and physicians should exercise care in determining the character of even slight dispositions before sending children to school. It has been a somewhat common practice to try and get a child suffering with some disorder ready to enter at the appointed date and there is, at times, a well-recognized risk to other pupils in the segregation of well and sick children. Even though a child may be improving he may be harboring the germs of a communicable disease and it is quite impossible for school physicians to cull out all of the doubtful cases. Parents should be instructed that a physician's advice should always be sought before allowing a child in a doubtful condition to go to school. More care is exercised now than formerly, but statistics will indicate the degree of prudence that prevails.

NEWS ITEMS.

MASSACHUSETTS ASSOCIATION OF ASSISTANT PHYSICIANS. — The first Midsummer Outing of the Massachusetts Association of Assistant Physicians was held at Nantasket Beach on Friday, August 25, 1922. A total of forty-six members attended. The party enjoyed an excellent shore dinner at the Nantasket Hotel where special arrangements had been made for

their entertainment. After dinner a business meeting was called to order by the President, Dr. R. M. Chambers. It was proposed by Dr. H. M. Watkins that the outing be made an annual affair, and the consent to this was unanimous. Following adjournment, the members threw aside the mantle of professional dignity and found themselves rewarded by an afternoon of unalloyed enjoyment.

Neil A. Dayton, M.D., *Secretary*,
Wrentham State School.

DR. CHANNING FROTHINGHAM'S TREATISE ON THE CULTS.—Dr. Bertram Bryant, Secretary of the Maine Medical Association, has sent Dr. Frothingham's treatise on Osteopathy, Chiropractic, and the Profession of Medicine, taken from the *Atlantic Monthly* of July, 1922, to all of the physicians in Maine, in order to enable them to discuss the questions involved intelligently. Much of the substance of this article has appeared in Dr. Frothingham's report in the JOURNAL, under date of Dec. 15, 1921, and in an editorial in the issue of May 19, 1921. All physicians should read Dr. Frothingham's treatise in order that proper influence may be used when these matters are before the legislature.

WEEK'S DEATH RATE IN BOSTON. — During the week ending Aug. 26, 1922, the number of deaths reported was 170 against 174 last year, with a rate of 11.61. There were 34 deaths under one year of age against 38 last year.

The number of cases of principal reportable diseases were: Diphtheria, 67; scarlet fever, 12; measles, 26; whooping cough, 46; typhoid fever, 5; tuberculosis, 40.

Included in the above, were the following cases of non-residents: Diphtheria, 9; scarlet fever, 3; tuberculosis, 5.

Total deaths from these diseases were: Diphtheria, 1; measles, 1; whooping cough, 4; tuberculosis, 11.

Included in the above, was the following case of a non-resident: Tuberculosis, 1.

Miscellany.

SECOND ANNUAL CLINIC FOR MAINE PHYSICIANS.

THE Second Annual Clinic for Maine Physicians, under the auspices of the Maine Public Health Association, the Maine Medical Association, Maine State Department of Health, and the Medical Societies of Androscoggin, Franklin, and Oxford Counties, was conducted Wednesday and Thursday, August 23d and 24th, at Lewiston.

Clinics were held each day at 10:00 A.M. On Wednesday medical and surgical clinics were

held at St. Marie Hospital, at which Dr. Joseph H. Pratt and Dr. Daniel Fiske Jones, both of Boston, lectured and gave demonstrations. On Thursday Drs. Pratt and Jones conducted similar clinics at the Central Maine General Hospital. Selected groups of cases at each hospital furnished material of special interest to the visiting physicians. At the close of each morning session a dainty luncheon was served by the nurses of the hospital.

Each afternoon beginning at 2 o'clock meetings were held at Chase Hall, Bates College, at which papers were read by State and National health officials. Wednesday afternoon health activities were considered from the standpoint of several administrative divisions of the State Health Department. The central topic of the evening was Co-operation, which was considered from three angles—the State Health Department, the Volunteer Agency, and the Medical Profession.

Thursday morning at 9 o'clock public health nurses who had been in attendance at many of the clinics were given a special program at Chase Hall, in which papers were read touching especially on problems arising in this field.

The program of Thursday afternoon was given over to papers on such special subjects as Tuberculosis, Ophthalmology, Mental Diseases, Cancer, Dental Hygiene, and the relationship of each to the public health program.

The two-day session was brought to a close by a dinner at 6:30 Thursday evening at Chase Hall. Dr. John Sturgis, President Androscoggin County Medical Society, presided. The speakers of the evening were Dr. Eugene Kelley, Massachusetts Health Commissioner; Dr. Langdon Snipe, President Maine Medical Association; Dr. E. D. Merrill, President Maine Public Health Association; Dr. Clarence F. Kendall, State Commissioner of Health for Maine; Dr. Clifton Gray, President Bates College; Drs. Joseph H. Pratt and Daniel Fiske Jones of Boston; and Dr. D. B. Armstrong of New York.

The program of the two days in detail follows.

AUGUST 23d.

10:00 A.M. Medical Clinic, St. Marie General Hospital. Clinician in charge, Dr. Joseph H. Pratt of Boston. Surgical Clinic, St. Marie General Hospital. Clinician in charge, Dr. Daniel Fiske Jones of Boston.

2:00 P.M. General Meeting, Chase Hall, Bates College; Chairman, Dr. Clarence F. Kendall, State Health Commissioner. Address of Welcome, Hon. Louis J. Brann, Mayor of Lewiston; Hon. Charles S. Cummings, Mayor of Auburn. "Functions of a State Department of Health." Dr. F. N. Whittier, Brunswick, Member Public Health Council. "The District Health Officer—His Duties and Opportunities." Dr. E. P. Goodrich, Lewiston, Health Officer for the Second Maine District. "The Relation of Social

Hygiene to Community Health," Dr. George H. Coombs, Director Division of Social Hygiene, State Department of Health. "The State Laboratory—How It May be Used," Dr. John Hewat, Director Division of Diagnostic Laboratories, State Department of Health. "Relation of Vital Statistics to the Mortality Rate," Florence S. Choate, Ph.D., Director Division of Vital Statistics, State Department of Health.

8:00 P.M. General Meeting, Chase Hall, Bates College. Chairman, Dr. Langdon Snipe, Bath, President Maine Medical Association. "Co-operation in Health Work from the Standpoint of the State Health Department," Dr. Eugene R. Kelley, State Health Commissioner for Massachusetts. "Co-operation in Health Work from the Standpoint of the Volunteer Agency," Dr. Donald B. Armstrong, New York, Executive Officer National Health Council. "Co-operation in Health Work from the Standpoint of the Medical Profession," Dr. Bertram L. Bryant, Bangor, Secretary Maine Medical Association.

AUGUST 24TH.

9:00 A.M. Meeting for Public Health Nurses, Chase Hall, Bates College. Chairman, Miss Edith L. Soule, Director Division Public Health Nursing and Child Hygiene, State Department of Health. "The Value of National Organizations to Local Associations in Child Health Work," Dr. Donald B. Armstrong, New York, Executive Officer National Health Council. "The Child Problem As Seen from the Viewpoint of the State Board of Charities and Corrections," Gertrude E. Hall, Ph.D., State Board of Charities. "Pure Food and Its Relations to the Health of the State," A. M. G. Soule, Chief Division of Inspection, State Department of Agriculture. "Child Welfare Work a Preventive Health Measure," Dr. Eugene R. Kelley, Boston, State Health Commissioner for Massachusetts. "Dental Demonstration, Red Cross Headquarters," Dr. Irving Pendleton and Miss Louise McLoon.

10:00 A.M. Medical Clinic, Central Maine General Hospital. Clinician in charge, Dr. J. H. Pratt of Boston. Surgical Clinic, Central Maine General Hospital. Clinician in charge, Dr. Daniel Fiske Jones of Boston.

2:00 P.M. General Meeting, Chase Hall, Bates College. Chairman, Dr. E. D. Merrill, Foxcroft, President Maine Public Health Association. "Tuberculosis—its Causes, Prevention and Cure and the Fight Against It as Part of a General Public Health Program," Dr. Francis J. Welch, Portland, Chairman Tuberculosis Division, Maine Public Health Association. "Preventable Eye Disorders," Dr. S. Judd Beach, Portland, Chairman Eye Division, Maine Public Health Association. "Mental Diseases from a Public Health Standpoint," Dr. Forrest C. Tyson, Acting Chairman Mental Hygiene Division, Maine Public Health Association. "Establishment of

Cancer Clinics in Various Public Hospitals in Maine," Dr. E. H. Risley, Waterville, Chairman Cancer Division, Maine Public Health Association. "Dental Hygiene—Its Relation to a General Public Health Program," Dr. Archer Jordan, Auburn, Chairman Dental Hygiene Division, Maine Public Health Association. "The Several Elements in a Broad Program of Public Health Work," Dr. Donald B. Armstrong, New York, Executive Officer National Health Council.

6:30 P.M. Dinner Meeting, Dr. John Sturgis, President Androscoggin County Medical Society, presiding. Speakers—Dr. Eugene Kelley, Dr. Langdon Snipe, Dr. E. D. Merrill, Dr. Clarence F. Kendall, Dr. Clifton Gray, Dr. Joseph H. Pratt, Dr. Daniel Fiske Jones, Dr. D. B. Armstrong.

Representatives from nearly all sections of the State were present and great interest was taken in all the features of the meeting.

THE GORGAS MEMORIAL FUND.

At the St. Louis Annual Session the Board of Trustees reported to the House of Delegates that in response to a request received from the directors of the Gorgas Memorial Institute of Tropical and Preventive Medicine for the coöperation of the American Medical Association, the Board had taken action which resulted in the appointment of a committee, representing the American Medical Association, to act on the project. The following were appointed: Dr. George E. de Schweinitz, Philadelphia; Dr. Charles W. Richardson, Washington, D. C., and Dr. Fred B. Lund, Boston.

The House of Delegates unqualifiedly endorsed the Gorgas Memorial as a tribute to a past President of the organization and one of its most distinguished and loved members. At its recent meeting the Executive Committee of the Board of Trustees received the following statement from the committee and directed its publication:

STATEMENT AND APPEAL FOR CO-OPERATION.

As a result of the stimulating suggestion of President Porras of Panama, it has been resolved that a fitting memorial shall mark the humanitarian service of the late Major General William C. Gorgas, and the beneficent influence of his life and work on mankind throughout the world. Following the thought of President Porras, it has further been decided that this memorial shall take the form of a scientific institute for the study of tropical diseases and of preventive medicine.

No better place could have been selected than Panama City, the gateway between the Atlantic and the Pacific, where General Gorgas' well-planned and executed work made possible the building of the Panama Canal.

It is hardly necessary to call the attention of the medical profession to the far-reaching effects of General Gorgas' work on the welfare of the people of the whole world, especially in tropical and semitropical climates, and in all places subject to the inroads of infectious disease.

We of the medical profession remember him as our Surgeon General during the early part of the World War. We remember his prompt recognition of the necessity of bringing into active service large numbers of physicians and surgeons from civilian life. We remember his genial and kindly nature, his high character, and his steadfast effort directed toward the organization and equipment of the Medical Corps of the Army. We remember the patriotic response. We remember him as a great sanitary officer, to whom we wish to pay a lasting tribute.

A central committee has been formed, with Admiral Braisted, retired, ex-President of the American Medical Association, as its president. The American Medical Association has appointed a committee of three to work in accord with the central committee, and through its members this appeal is made to the American medical profession.

The plan is to build at Panama an institute for the study of tropical and infectious diseases, with a hospital, laboratories, departments for research and all other facilities required in an institute of this character, erected and administered according to the most progressive, modern ideals. The Panamanian government, owing to the far-sighted, philanthropic vision of President Porras, has donated the great Santo Tomas Hospital and also the ground on which it is proposed immediately to construct the buildings as they have been described. Dr. Strong has been appointed the scientific director.

In conjunction with this work in Panama, there will be established in Tuscaloosa, Ala., the Gorgas School of Sanitation for the purpose of training country health workers, sanitary engineers and public health nurses, especially educated to deal with the problems peculiar to the Southern states.

An endowment of six and one-half million dollars will be required to enable the institute to carry on the work according to the plans which have been formed.

The Republic of Panama has demonstrated its sympathetic and practical interest in this enterprise with splendid liberality. The physicians of our country, and especially the members of the American Medical Association, surely will not disregard the memory of a former president, and will seize the opportunity to make in this respect a contribution of which they will be proud.

The campaign for funds is to be international. A large response is expected from North, Central and South America, since the nations of these countries have been the chief beneficia-

ries of the labors of General Gorgas. It is fitting that his co-workers of the American medical profession should be requested to respond generously to this appeal. It is hoped that every member of the American Medical Association will make as liberal a subscription as possible. Any sum will be gratefully received. Checks should be drawn to the order of the "Gorgas Fund" and should be mailed to the American Medical Association, 535 North Dearborn Street, Chicago.

CHARLES W. RICHARDSON, Washington, D. C.,

F. B. LUND, Boston,

G. E. DE SCHWEINITZ, Philadelphia.

DESTRUCTION OF LICE.

THE United States Naval Bulletin publishes an extract from "Sanitary Entomology" which gives approved treatments of lice on the body as follows:

A. *Crab louse*.—(1) Kerosene emulsion soap: The soap is made by boiling 1 part of soap chips in 4 parts of water and then adding 2 parts of kerosene oil, or 4 parts of gasoline. This jellies when cold, and 1 part of this soap jelly is added to 4 parts of warm water, making a good liquid soap at very small cost.

This is followed by vermin jelly:

Texas fuel oil, sp. grav. 0.86 b. p. 250 to 350° C	50 parts
Crude vaseline	20 parts
Soft soap	50 parts

The cutting or shaving of pubic or axillary hairs is to be avoided because of the discomfort caused. Powders such as N. C. I., etc., should not be used in the pubic regions.

B. *Head louse*.—Wash head with equal parts of kerosene and vinegar or 25 per cent. acetic acid for one-half hour, keeping the head covered with a towel. The vinegar separates the eggs from the hairs, while the kerosene kills them. Use a fine-toothed comb to remove the eggs and lice. Wash the head with warm water and soap containing kerosene (Nuttall).

C. *Body louse*.—(1) Bathe, using liquid kerosene soap emulsion; (2) disinfect, and disinfect clothing, possessions, etc.

In absence of facilities for the above—insecticidal powder (Moore).

Cresote	1 cc.
Sulphur	½ gr.
Talc.	20 gr.

Fumigation: Entomologists prefer cyanide.

In "Investigation of the Louse Problem," by W. Moore and A. D. Hirschfelder, the authors give the following summary of the problem:

1. Lice and their eggs are destroyed by the ordinary laundering processes used in the washing of cotton and khaki goods; for woollens slight alterations in the methods of washing are necessary.

2. Chlorpierin may be used for fumigation of garments, accomplishing the desired results in a short period of time, with a small quantity of the chemical, without the use of high temperatures.

3. The sachet method of controlling lice is ineffective or very expensive.

4. Louse powder may be used with success but, being a wasteful method of applying an insecticide, is not recommended.

5. Impregnation of the underwear is the most promising method of louse control between louings. Active chemicals of very low volatility are necessary to prove effective for the longest period of time. Halogenated phenols, such as dibrom-metaresol, dichloromono-brommetaresol, and their sodium salts, dibromearvaerol, and dibrom-xylenol were found to be the most promising

COUNCIL ON PHARMACY AND CHEMISTRY.

The following articles were accepted during July:

Intra Products Company: Ven Calcium Caedylate Ampules-Ipeco.

Winthrop Chemical Company: Theocin.

During August the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

G. W. Carnrick Co.: Corpus Luteum-G W. C. Co.

Gradwohl Laboratories: Sterile Solution of Mercury Oxycyanide Gradwohl.

Lederle Antitoxin Laboratories: Pollen Antigens-Lederle, Solution Epinephrine-Lederle.

New York Intravenous Laboratory: Loeser's Intravenous Solution of Mercury Oxycyanide.

Parke, Davis and Co.: Antipneumococci Serum (Polyvalent).

Winthrop Chemical Co.: Luminal Sodium Tablets 1½ grains.

PROVISIONAL BIRTH FIGURES: 1922

The Department of Commerce announces that provisional birth figures compiled by the Bureau of the Census for the first quarter of 1922 indicate lower birth rates than for the corresponding quarter of 1921. For the states compared, the total birth rate for the first quarter was 23.3 in 1922, against 25.3 in 1921. The highest birth rate for the quarter (29.2) is shown for North Carolina and the lowest (16.5) for the State of Washington. Higher rates will be necessary for the remaining months of the year if the 1922 rate is to equal the 1921 rate for the Birth Registration Area—24.3.

MORTALITY FIGURES

Provisional mortality figures compiled by the Bureau of the Census for the first quarter of 1922 indicate higher death rates than for the corresponding quarter of 1921. For the states compared, the death rate for the first quarter was 13.7 in 1922, against 12.6 for the first quarter of 1921. The highest mortality rate for the quarter is shown for the District of Columbia (17.6) and the lowest for Wyoming (9.6). These early figures forecast for the year 1922 a higher rate for the death registration area than the record low rate (11.7) for the year 1921.

Obituary.

THE PASSING OF A LEADER IN MEDICINE.

DR. STEPHEN SMITH, the well-known surgeon and public health officer of New York, died at Montour Falls, near Elmira, N. Y., August 26, 1922, at the great age of ninety-nine years, six months and seven days. That he would round out the century span was his conviction—a normal lease of life, as he thought, for did it not take twenty years to perfect the bony skeleton in vertebrates? Five times this period would be a proper age for the individual if he observed the rules of health laid down by Dr. Smith, namely, to work hard, not eat too much meat, drink plenty of milk and sleep many hours at night.

The son of a cavalry officer in the Revolutionary War, he was born on a farm at Skaneateles, Onondaga County, on February 19, 1823. As a boy he worked on a farm in the days when farmers got up at four o'clock in the morning and kept at their varied tasks until dark.

Before he had determined to study for a profession, he had studied Latin and Greek. He attended the Academy of Homer, where he was declared to be prepared for the sophomore class of college. Instead of completing his college course, ill-health induced him to enter upon the study of medicine with Dr. Caleb Green of Homer. Under his advice the pupil attended his first course of lectures in the old Geneva Medical College. In 1850 Dr. Smith came to New York and entered the College of Physicians and Surgeons, Columbia University, from which he graduated in 1851.

From 1854 to 1891, Dr. Smith was professor of anatomy at Bellevue Hospital Medical College, and in 1856, associate editor of the *Journal of Medicine*.

An accomplished surgeon and teacher, his "Handbook of Surgical Operations," published early in the Civil War, was widely distributed to the surgeons of the Federal Army. Later his "Operative Surgery" became a standard textbook in the medical schools of the country.

Even before the war he became interested in improving the sanitation of New York, a work which occupied his attention for a long series of years. Through publicity and the assistance of the *New York Evening Post*, he was able to draft a law creating a board of health, and get it passed. Forced to accept the position of health officer under this law, he accomplished yeoman service in cleaning the streets of their filth, establishing health ordinances, and doing away with the scourges of smallpox, typhus, cholera, and diphtheria, which had killed their thousands. Extending this salutary service, he organized and became the first president of the American Public Health Association, which spread throughout the country the propaganda for municipal cleanliness. In his ninetieth year he published a book describing the shocking health conditions in our chief American city before the sanitary era, entitled: "The City That Was."

In his old age he was appointed president of the New York Department of Charities, and instituted far-reaching reforms which did not meet the approval of Mayor Van Wyck, who removed him from office, as he wrote: "for the good of the service."

While a delegate to the Ninth International Sanitary Conference of Paris, when seventy years old, Dr. Smith cured himself of chronic dyspepsia by following the French custom of taking wine with his meals. His account of this experience led the newspapers to cite him as an advocate of the use of alcohol, and the prohibition propagandists to refer to him with scorn.

Recently Dr. Smith had finished two books: "Who Is Insane," depicting his experiences as a lunacy commissioner, and the volume already referred to, "The City That Was." Until a short time ago he had enjoyed good health and had addressed audiences on health problems, his portrait appearing in the art supplements of the Sunday newspapers within a few months.

Correspondence.

CARRYING POSTGRADUATE INSTRUCTION TO THE DOCTOR, NORTH CAROLINA'S PLAN.

Mr. Editor:

The following letter was written at my request by Dr. Frederick R. Taylor of High Point, North Carolina, with the idea that the physicians of Massachusetts would be interested to hear what has been done in another state toward stimulating better medical work.

Yours truly,

HENRY A. CHRISTIAN,

High Point, N. C., August 16, 1922.

Dear Doctor:

According to your request, I am sending you a few personal impressions of the University Extension Postgraduate Instruction in Medicine as I have seen it in North Carolina. Anything I may say is purely an individual student's view of what seems to me

an extraordinarily valuable method of postgraduate medical teaching.

The essential principle of the work is this: To make possible more widespread postgraduate medical education by sending the instructor to the practitioners, instead of leaving such education to those favored few among the doctors who can get off to distant medical centers.

The first work of the sort which was done in North Carolina was in 1916. The subject chosen was Pediatrics, the branch of medicine in which postgraduate education was most needed in our section. Two instructors were obtained, one from Harvard for eastern North Carolina, and one from Northwestern University, Chicago, for western North Carolina. I believe that this work caused a very striking reduction in infant mortality from diarrheal diseases in our section, though I have no statistics on this point. I am sure that since 1916 I have seen far fewer cases of "alimentary intoxication" and "decomposition" of Finkelstein, and of dysentery in babies, than I saw previous to that time, and those infantile diarrheal disturbances, that I have seen since then, have been of a much milder type, on the average. Dr. C. S. Grayson, of this town, who has a large pediatric practice, shares this view, and Dr. D. A. Stanton, the dean of the profession here, when asked if he thought the course in Pediatrics profitable, replied that he considered it worth \$1,000,000 to High Point and vicinity.

The war interrupted this work after 1916, and it was not resumed until this year, when the subject of Internal Medicine was selected, there being two instructors, one from Harvard and one from the University of Chicago. In our section the scheme followed is this: The instructor has a circuit of six towns, Asheboro, Greensboro, High Point, Lexington, Salisbury and Charlotte. It was planned that a class should be held each weekday in one of these towns. As nobody wanted a class on Saturday, the work is doubled up so as to have classes in two adjacent towns on Tuesdays, and no class is held on Saturday. The course lasts twelve weeks, each town thus getting twelve lectures. A set subject is presented at each lecture, but after the lecture members of the class are privileged to bring in patients of any kind for diagnosis and discussion, whether they bear on the day's subject or not.

As examples of the subjects taken up, our group was given the following lectures in 1916: Milk, digestion of milk, modern conception of "disturbances of nutrition," failure to gain, the states of dyspepsia and intoxication, decomposition, parenteral and enteric infections as factors in the causation of "disturbances of nutrition," artificial feeding of the normal infant, breast feeding, the disturbances arising in the breast-fed, acute anterior poliomyelitis, obscure causes of fever, convulsions.

This year the subjects so far have been: Lobar pneumonia, chronic lung diseases other than tuberculosis, epidemic encephalitis, endocarditis, angina pectoris and aortitis, irregularities of the heart, peptic ulcer and gastric cancer, constipation and the visceroprotosis syndrome, nephritis and diabetes.

There are a number of striking advantages in this method of having a peripatetic instructor to teach the doctors in their own communities. In the first place, the cost to the individual student is so slight as to put it within the reach of practically everyone. Both in 1916 and this year, \$30 per student has been the charge for a complete course of twelve or thirteen lectures. The only condition is that a certain minimum number of students—I think fifteen—must be guaranteed before a class will be held in a given community. Payment for the entire course is made at the beginning of the first lecture, when an organizer from the university accompanies the instructor, introduces him, and handles all financial matters with

the students. Another saving to the doctors is, of course, elimination of travelling expenses to a distant medical center and living costs while away. The greatest economy, however, results from the fact that in this system the doctor loses no time from his work. This makes it possible to reach a very large number of men who could not, and some who would not, otherwise get postgraduate instruction.

A second marked advantage of this method of teaching is that the clinical demonstrations are given on diseases and conditions existing in the physicians' own community, and the problems of their everyday work are thus elucidated. This is no small matter. A doctor in a small town may go to some great clinic and feel that the methods of examination and diagnosis in use there are impractical at home. With the method of teaching under discussion, he sees modern diagnostic procedures applied at home, and, perhaps quite as important, *the patients see them, and learn to appreciate and to demand careful, systematic examination.* This at once raises the whole standard of medical practice in a community.

The university has shown wisdom, I believe, in selecting for their teachers in extension work young, able men hailing from a considerable distance. It is seldom possible to get a man of long experience and ability for such work, and a young man of ability is far better than an older man of mediocrity. It is of some importance that he should come from a section too far away to attract many patients from the locality where he is teaching. This removes all suspicion of self-interest from his work. If a local man taught the course he would almost unavoidably engender jealousy in the minds of some others who would desire the work, or whose patients would change to the instructor for their regular physician.

Coming from a distance and having no axe to grind, the instructor can occasionally indulge in some pointed comments to the good of all concerned. For example, a mother brings in a child with chorea. Prolonged rest in bed is advised. The mother says, "But she doesn't want to stay in bed." Whereupon the instructor turns on her rather fiercely and demands, "Mother, who's the boss at your house, you or your child?" Mother doubtless doesn't like this, but she can't fire the instructor, and in the end it has a distinct tonic effect upon the morale of all concerned. In a community where all patients are private patients, such moral tonics are all too rare. The instructor may also tend to speak his mind more freely to his students when he lives too far away to expect to be called by them in consultation practice.

There are certain obvious educational advantages to the teacher in coming from a distant section. He comes in frequent contact with some diseases that are uncommon in his own locality, and thereby broadens his experience. For example, a Northern physician teaching in our section would probably have opportunities to study pellagra and bookworm disease that he could not get at home, although both these diseases are far less common here than they once were. In some parts of eastern North Carolina there are also exceptional opportunities for the study of malaria, though this disease is rapidly decreasing, too. The teacher will also inevitably come in contact with some ideas and methods that are new to him, and even if these are not always of the latest date he cannot fail to pick up an occasional point of value. The relation of teacher and student is always a reciprocal one, and there is no better way to learn than to teach.

"But there is neither East nor West, Border nor Breed nor Birth.

When two strong men stand face to face, tho' they come from the ends of the Earth."

And no two earnest, conscientious physicians can get together and work on a common problem without both deriving benefit from their contact, no matter what their differences in training, opportunities, methods or environment.

Just a few words as to the subjects in which postgraduate education of the type under consideration would seem to be especially valuable. Such work is not intended to develop specialists; it is for the purpose of keeping practising physicians in touch with the essential features of modern medical practice. The educational needs of different communities will naturally vary to a considerable degree. Obviously, physicians located in great medical centers have no need of this type of instruction; they can go to the schools for their postgraduate work at a minimum of time and expense. In our locality, instruction in Pediatrics was urgently needed at the time the course was given. Internal Medicine, dealing as it does with so wide a field, is always timely.

Therapeutics is a field in which postgraduate instruction is much needed; not so much what to give, perhaps, as what not to give, and a study of the action of drugs. Men in practice are incessantly bombarded with literature from all quarters of the earth, advertising all manner of so-called "ethical proprietaries," very many of which are neither ethical nor can they be used with propriety, but fortunate is he who can stand against the continuous summation of stimuli urging him to use the latest (?) scientific (?) discoveries (?) in the treatment of all human ills, unless he also has a balance wheel in an opportunity to obtain really scientific postgraduate therapeutic instruction.

Elementary neuropsychiatric work is another subject in which there is crying need for more knowledge among the profession as a whole, and I hope some day to see this subject brought to us. Dermatologic instruction is much needed, but sufficient clinical material is hardly available in small communities. Surgery and the other specialties seem to me to be such highly specialized fields that they should be taught only in medical centers with ample facilities and clinical material, but I am not competent to discuss these fields.

Different subjects present rather marked variations in their didactic problems. In our locality, Pediatrics found a very receptive audience, as the members of the class had relatively little knowledge of infant feeding. Doubtless they would be equally receptive towards Neuropsychiatry. With Internal Medicine the problem is somewhat different. Here, at least, the more alert members of the class are in a more or less argumentative mood, rather than a purely receptive one. Everyone takes a fling at Internal Medicine, and everyone has his pet theories and practices. Informal discussion plays a relatively large part in this instruction, and has proved very helpful. No doubt Therapeutics would show like didactic problems.

In closing, let me make it clear that I am in no way degrading the usual method of going away to a great school for postgraduate medical instruction; that has been, is, and always will be, invaluable, and in a class apart by itself, for those able to avail themselves of it, but I do believe that this University Extension work is one of the most valuable things that have been done in the history of medical teaching, from the standpoint of widespread benefit to the medical profession and the public.

Very sincerely yours,

FREDERICK R. TAYLOR.

High Point, N. C.

NEW YORK AND NEW ENGLAND ASSOCIATION OF RAILWAY SURGEONS.—The 32nd annual session of this association will be held in the Colonial Room, on the third floor of the Hotel McAlpin, New York City, on Saturday, October 28th, under the presidency of Dr. Donald Guthrie of Sayre, Pennsylvania. A very interesting and attractive program is being arranged for this session. Plans are under way to make this the biggest and most successful session ever held by this association.

RECENT DEATHS.

DR. CALVIN OLIVER PRINCE, for more than thirteen years a practising physician at Plymouth, formerly the medical superintendent of the New England Sanitarium at Melrose, Mass., died at his home in Plymouth, July 28, 1922, at the age of forty-nine, from myocarditis.

The son of Charles A. Prince, he was born in Amherst, N. H., in 1872, and graduated from the American Medical Missionary College, Chicago, in 1899. He was a member of the American Medical Association, the Massachusetts Medical Society, the Plymouth County Medical Society and of the staff of the Jordan Hospital. Latterly he had given special attention to obstetrics. For nearly two years he had been in failing health, the end coming from an attack of myocarditis.

He is survived by his widow, three sons and a daughter.

DR. JOSEPH HENRY CUNNINGHAM of Cambridge is reported to have died in London, England, on August 28, 1922, while on a foreign tour with his wife.

He was born in Prince Edward Island, Canada, in 1867, and had lived and practised in Cambridge for thirty years, being on the staff of the Holy Ghost Hospital for Incurables. His education was received at St. Dunstan's College, Canada, where he took an A. B. in 1888. In 1892 he was graduated in medicine at Harvard.

His wife, who was Miss Josephine Carroll of Charlottetown, P. E. I., survives him, as does a brother, Henry J. Cunningham, former commissioner of public safety in Cambridge. Dr. Cunningham was a member of the American Medical Association, of the Massachusetts Medical Society, and of the Inter-colonial Club.

DISEASES REPORTED TO THE MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING AUGUST 19, 1922.

<i>Disease.</i>	<i>Cases.</i>	<i>Disease.</i>	<i>Cases.</i>
Anterior poliomyelitis	12	Pneumonia, lobar	19
Chicken-pox	10	Scarlet fever	53
Diphtheria	98	Septic sore throat	3
Dog-bite	7	Syphilis	37
Dysentery	2	Suppurative conjunctivitis	7
Encephalitis lethargica	2	Tetanus	3
Epidemic cerebrospinal meningitis	2	Trachoma	2
German measles	1	Tuberculosis, pulmonary	125
Gonorrhea	73	Tuberculosis, other forms	9
Malaria	1	Typhoid fever	13
Measles	67	Whooping-cough	116
Mumps	15	Hookworm	2
Ophthalmia neonatorum	18		

REPRINTS.

A few reprints of *The Treatment of Diabetes Mellitus*, by Elliott P. Joslin (*Boston Medical and Surgical Journal*, June 22, 1922), are available and may be procured by applying to Dr. Joslin, 81 Bay State Road, Boston.

SOCIETY MEETINGS.

A list of society meetings is herewith published. This list will be changed in information furnished by the secretaries of the societies and will appear in each issue. The incomplete details and omission of names of many societies is because the information has not been furnished, although the JOURNAL has requested information for publication. Free publication of dates of meetings may accommodate many members of societies. Several physicians have spoken of the importance of having a schedule of meetings published so that arrangements may be made for special meetings on dates which may not conflict.

It may be possible to adopt the custom of the publication of notices of stated meetings in the JOURNAL and if this is generally understood, secretaries of societies could save time and expense. If general coöperation can be secured this plan can be made permanent.

DISTRICT SOCIETIES.

Barnstable District:—Hyannis,—November 3, 1922, February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol North District:—Place undecided—September 21, 1922.

Bristol North, Bristol South, Barnstable and Plymouth Districts will hold joint meetings sometime this fall.

Bristol South District:—Fall River,—November 2, 1922, May 3, 1923.

Essex North District:—Haverhill, (Semi-Annual Meeting)—Jan.
3, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting)—May
2, 1923.

Essex North, Essex South, Middlesex North and Middlesex South Districts will hold joint meetings October 18. Place undecided.

Hampden Districts:—With Hampshire District in Holyoke. Early part of September. Regular meeting in October.

Hampshire District:—With Hampden District in Holyoke. Early part of September.

The four western districts plan to hold a joint meeting early in October.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

September, 1922. Springfield Academy of Medicine Meeting, September 12, 1922, Allen G. Rice, Secretary. New England Surgical Society. 5th Annual meeting; will be held at Burlington, Vermont, on September 22 and 23, 1922, P. E. Truesdale, Fall River, Mass., Secretary.

October, 1922, Boston Tuberculosis Association, Tuberculosis Institute for Physicians will be held on October 5 and 6 at the Massachusetts General Hospital, Bernice W. Billings, Boston, Executive Secretary. New England Dermatological Society, Wednesday, October 10, 1922, at the Massachusetts General Hospital, Boston, Massachusetts General Hospital, C. Guy Laue, Secretary. Clinical Congress of the American College of Surgeons will be held in Boston, Mass., on October 17, 1922, Franklin H. Martin, Chicago, Director. American Massachusetts Osteopathic Association, Boston of Health, October 26, 1922, Boston, Mass., F. C. Curtis, Secretary. New York and New England Association Railway Surgeons 32nd Annual Meeting at New York City, October 28, 1922, Donald Guthrie, Sayre, Pa., Secretary.

November, 1922. Massachusetts Society of Examining Physicians,
(Date and place of meeting undecided), Hilbert F. Day, Secretary.
National Cancer Week, November 12 to 18.

December, 1922. New England Dermatological Society Meeting, Wednesday, December 13, 1922, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary.

January, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston, Francis G. Curtis, Secretary.

February, 1923. New England Dermatological Society Meeting, February 14, 1923, at 3.30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

March, 1923. Massachusetts Society of Examining Physicians,
(Date and place undecided), Hilbert F. Day, Secretary.

April, 1923. New England Dermatological Society Meeting, April 11, 1923, at 3.30 p. m., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston, Francis G. Curtis, Secretary.

May, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided). American Pediatric Society Meeting, May 31, June 1, and 2, 1923, at French Lick Springs Hotel, French Lick, Ind., H. C. Carpenter, Secretary.

June, 1923. American Medical Association, San Francisco, June 25-29, 1923, Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923. Massachusetts Association of Boards of Health, July 29, Nantasket, Francis George Curtis, Secretary.

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The Massachusetts Medical Society.

PAPERS AND DISCUSSIONS

OF THE

SECTION OF SURGERY

AT ITS MEETING AT THE HARVARD
MEDICAL SCHOOL, BOSTON,
JUNE 13, 1922.

MALIGNANCY IN THE WAR VETERANS.

BY WILLIAM F. COTTING, M.D., BOSTON.

THIS series of cases is presented essentially because of the youth of the subjects, most of them at an age when one hardly expects carcinomatous disease. Whether there is any significance in the fact that these men were all ex-soldiers, therefore subjected recently to very extraordinary strain of exertion and abnormal living conditions, or whether the opportunity to present so many cases of this type within these age limits is due to the close supervision and study of illnesses occurring among war veterans, would be difficult to answer.

Parker Hill Hospital, during the period covered, has drawn a large share of the cases of serious illnesses, particularly the surgical cases, from a very large body of ex-soldiers belonging to the first, or New England District. Considering the age of the expeditionary forces, it is significant that the percentage of this very

large total of new-growths, or of the number of cases of illness, is rather strikingly large. That the outcome of these cases was so nearly always unfortunate, need give no surprise to those familiar with the courses of cancer in young individuals.

The first nine cases are true carcinoma, attested in seven by pathological report, with or without autopsy.

CASE 1. P. F., age 26.

Family History: Father and mother died of pneumonia. One brother in good health. No tuberculosis, cancer or insanity in the family.

Past History: Negative.

Present Illness: Patient enjoyed good health until the winter of 1918-1919, after which he became badly constipated, passed mucus and often a blood-streaked stool. Condition gradually grew worse, and in the fall of 1920, patient developed a pain in the rectum. Pain was relieved by bowel movement for about two hours. On account of the severity of this pain, patient went to the Boston City Hospital, where a biopsy was done, and Cancer of the Rectum diagnosed. On March 23, 1921, colostomy was performed, and these findings reported:

"Large mass found at lower end of sigmoid and upper rectum, infiltrating surrounding tissues. Mass was smooth, firmly adherent, and the size of a small orange."

After a few weeks of convalescent treatment at Sterling, Mass., pain became so severe that

patient was referred to U. S. Veterans' Hospital No. 36 for treatment. On admission, May 7, 1921, examination showed thin, poorly-nourished white man,—said to have lost twenty-five pounds during the last year. Chest was negative, except for a few sub-crepitan rales in both bases in axillae. Abdomen presented a functioning colostomy opening. Digital examination of rectum, under gas anesthesia, revealed a circular mass, about two inches inside the spincter, surrounding the lumen of the gut. It was friable and bled easily.

May 3, 1921: Patient receiving radium treatment at the Collis P. Huntington Memorial Hospital.

Several treatments were given, without apparent relief.

From November until April 25, 1922, when patient died, his cachexia increased, the pain became very severe, and an edema of the extremities developed.

Autopsy was performed, and the following findings reported:

"Heart, lungs and spleen essentially negative.

"Liver, weight 2040 grams, shows a large mass involving practically the whole of the left lobe. It is white, hard and contracted. There are visible on the superior surface of the right lobe, two other similar masses which are somewhat smaller.

"The gall-bladder appears small and shrunken, and is filled with many stones. These stones take up the full capacity of the gall-bladder, which is shrunken down about them.

"The kidneys are negative. On the right, however, there is a definite kinking of the ureter, at the brim of the pelvis. From this point up, and including kidney pelvis, the entire lumen is much dilated, being from $1\frac{1}{2}$ to 2 centimeters in diameter. The ureter is filled with urine.

"The other viscera are not remarkable, except for the colostomy.

"The rectum is surrounded by a mass of extremely friable, gray, necrotic tissue, which has invaded the lumen for about 6 centimeters. This mass has also invaded the bladder and recto-vesicular tissue.

Diagnosis: carcinoma of rectum, metastatic carcinoma of liver, cholelithiasis."

CASE 2. S. C., age 27.

Family History and Past History: Negative.

Present Illness: Patient admitted to U. S. Veterans' Hospital No. 36 March 12, 1920. For the past two years patient has complained of frequent nosebleeds. This is the only complaint. On admission, the physical examination was negative, except for slight anemia and a new-growth in the left nostril. Tissue from this nostril showed the following:

"Specimen shows carcinoma, the cells of which are but little differentiated and show mitotic figures."

A few days later a second biopsy was performed by Dr. Wright of the Cancer Commission, Harvard University, and a diagnosis of carcinoma made.

On May 1, 1920, under nitrous oxide anesthesia, a radical excision of the tumor was performed. It was necessary to resect the septum and the greater part of the superior maxillary bone. Patient returned from the operating room in a surgical shock. Proctoclysis and hypodermoclysis were instituted.

May 4, 1920: Since operation patient has developed a cough, slight temperature and increase in pulse rate. Chest findings indefinite.

May 8, 1920: Examination of the chest shows slight dullness on the right, from the third rib down. There are a few crepitan rales.

May 15, 1920: General condition slightly worse than it has been for the past week. Examination of the chest shows definite signs of consolidation, which might be an abscess of the lungs or empyema. Paracentesis was not possible on account of his general condition. Patient has occasional chills and is very restless. Sputum examination positive for diplococci pneumoniae. X-ray of the chest by bedside unit shows the following:

"Large triangular area of increased density with base at the periphery, under region of right middle lobe. Findings consistent with pneumonic process."

Sputum report from the state laboratory showed one gram positive and one gram negative for staphylococci. Hospital laboratory showed sputum negative for pneumococci and positive for staphylococci.

Patient's condition steadily grew worse from hour to hour,—temperature, pulse and respiration varying, until May 27, 1920, when patient died. Autopsy was not performed.

CASE 3. S. T., age 30.

Family History: Negative.

Past History: Negative, up until present trouble.

Present Illness: While in France, November, 1918, patient reported to hospital infirmary with pain in the back, between the scapulae. This pain has been more or less constant up until three months ago, when it was referred to the right side of the chest, gradually increasing in severity. Patient was admitted to U. S. Veterans' Hospital No. 36 February 23, 1921, for observation for tuberculosis. He had lost forty pounds in the past months. Chief complaint was pain in the right axilla, accompanied by a cough and dyspnoea. Examination of the chest —negative for tuberculosis; temperature, pulse and respiration normal.

February 28, 1921: Patient cannot sleep, has marked dyspnoea, severe pain in back and side,—referred to the lower quadrant of the belly. X-ray of the chest shows:

"Lower portion of the right chest very dense, and obliterating the right costo-phrenic angle. The line of density follows the axillary border,—slight haziness above this area. No fluid level noted. There is slight displacement of the heart to the left. The shadow in the right base merges with the diaphragm."

Physical examination on this date showed signs of fluid, without any definite level, and condition thought to be a chronic pleurisy with effusion more or less localized by adhesion.

March 1, 1921: Condition unchanged. Patient is raising a large amount of sputum, which is negative for tubercle bacilli. Urinalysis negative. Examination of the abdomen by the Surgical Service on this date showed nothing remarkable. Paracentesis of the right chest performed and two grams of straw-colored fluid removed.

March 8, 1921: Chest aspirated, and 120 c. c. of fluid removed, followed by considerable relief of the dyspnoea. Sputum negative for tubercle bacilli. Blood Wassermann negative. Blood count normal. Culture of chest shows pneumococci.

Condition remained the same until the 1st of April, when the pain became centered over the gall-bladder region. This area was exquisitely tender and had slight muscle spasm on palpation. Paracentesis revealed no fluid. Respirations rapid and labored.

April 8, 1921: Condition very much improved. Respiration less labored; not so much pain. X-ray shows marked diminution of the dense area of the right chest. Patient has lost five pounds in the past week; sputum scanty and negative for tubercle bacilli. Examination of the belly at this time shows an indefinite, irregular mass in the upper right quadrant. It was thought that this might be the liver pushed down by fluid in the chest. Chest was tapped and only a small amount of blood obtained.

April 21, 1921: Considering the fact that for the past week the symptoms have pointed more to gall-bladder, and the fact that there is a demonstrable tumor mass, laparotomy was performed. The liver was found somewhat enlarged, and a large retroperitoneal mass, presumably cancer, was found. This mass was extensive, and at a position just behind the liver, at the head of the pancreas. Culture was taken from the abdominal fluid which was present in small amount, and specimen removed from tumor mass.

Patient's condition grew steadily worse, and he died on the 23rd of April, 1921. No autopsy. Examination of the tissue showed carcinoma.

CASE 4. J. N., age 34.

Family History: Negative for tuberculosis, cancer or insanity.

Past History: Operation for appendicitis when a child. Was gassed in France, July 1, 1918. Hospitalized for six months.

Present Illness: After discharge in 1919, patient was granted vocational training on account of the dyspnoea which he suffered following gassing. While in training, he had pain in the region of the stomach, and it was for this pain that he was sent to the hospital. Patient states that for the past three or four months he has noticed a yellowish tint to the skin, which has gradually increased and become more marked during the last three weeks. Patient was admitted to this hospital Jan. 5, 1922.

Examination reveals a well-developed and fairly well-nourished white male. There is a marked yellowish tint of all conjunctivi. Examination of the chest reveals marked increase of vocal fremitus in the right apex, with slight dullness over the right apex, and broncho-vesicular breathing. There are no râles present. Heart negative. Abdomen: tenderness in the midline, below the sternum. No masses felt. Lower border of liver is about a finger's breadth below the costal margin.

January 9, 1922: X-ray of the chest shows slight cloudiness in the right apex.

January 13, 1922: Bismuth series of the gastro-intestinal tract shows the following:

"Six hours after motor meal, fluoroscopic examination shows meal in lower ileum and caecum. These structures are of normal contour and position. Caecum is slightly fixed. Liquid meal was given, and revealed an orthotonic cow-horn stomach of normal contour. Pylorus somewhat fixed. Pyloric ring patent. No duodenal cap. Twenty-four hour plate shows meal in caecum, ascending and transverse colon and rectum. The above changes are indicative of moderate gastropnoia. Right upper quadrant lesion cannot be ruled out."

January 24, 1922: Patient passing normal colored stools. Urinalysis negative, except for bile. Blood Wassermann negative.

February 18, 1922: Considering the fact that this patient has had a persistent jaundice, presumably of the obstructive type, and that patient's condition has not improved, exploratory operation was deemed advisable. This was done on this date, and no evidence of stones in the gall-bladder or ducts found. There were numerous adhesions in the region of the gall-bladder, extending down to the caecum. Gall-bladder was drained, the adhesions severed, and the belly closed.

For the next two or three days patient made a good recovery, gall-bladder draining well, pulse and temperature normal.

February 21, 1922: Patient is taking small amounts of liquid at frequent intervals. He is troubled considerably with hiccups; spent a very poor night on account of this. Nitroglycerine offered temporary relief. Patient occasionally vomits a small amount of greenish-yellow fluid.

February 22, 1922: Gall-bladder draining well. Patient's jaundice increasing in the past 48 hours; hiccup has persisted without relief. Examination of the wound shows that because of hiccup a few stitches have broken loose and wound is oozing a small amount of fresh blood. Patient is running a slight temperature and pulse is up to 120. Jaundice increasing; gall-bladder draining well.

February 27, 1922: Patient being fed per rectum. Hiccups only occasional and mild in character. There is presumably a peritonitis present, and, considering the fact that we have an obstructive jaundice, question of cancer is entertained.

May 1, 1922: Patient gradually growing weaker; jaundice more intense until death.

Autopsy shows the following points of interest:

"Pleura of the right lung is everywhere adherent to the chest wall. Left lung has one or two small adhesions anteriorly, otherwise negative.

"Heart is negative.

"Lungs negative, except for hypostatic pneumonia.

"The liver weighs 2100 grams. Superior surface is covered with areas of fibrin. On the lower margin is an indentation corresponding to a mass of clotted blood, which weighs 500 grams. Otherwise the liver is not remarkable.

"Gall-bladder is bound to the liver firmly by adhesions. At the tip there is a small area, undergoing surgical repair. The mucosa of the gall-bladder is slightly injected; bile is thin and yellowish, non-purulent. On opening the gall-bladder there is a mass measuring 2 x 1 centimeters in diameter, which surrounds the cystic duct and invades its lumen. This mass is pinkish-yellow in color and contains a few minute areas of hemorrhage, the mass compressing the duct markedly. The duct, however, is patent, as a very fine probe can be pushed through.

"Kidneys are negative.

"Spleen is negative.

"The other viscera are not remarkable.

"Histological diagnosis: Heart shows edema of connective tissue; cardiac fibers are cloudy and show occasional fatty changes. There is some sedimentation of the fibers. Blood-vessels are all dilated. Acute infection—Myocarditis.

"Lungs show areas containing giant cells of caseous necrosis. Alveolar walls contain dilated blood-vessels which show a large number of polymorphonuclear leukocytes in lumen. Alveoli contain considerable serum. Hypostatic pneumonia; pulmonary tuberculosis.

"Tumor consists of epithelial cells, fairly closely packed together, with an arrangement which is slightly suggestive of alveoli. There is an abundant struma in which there are numerous polymorphonuclear leukocytes. Many of these are acidophilic.

"Diagnosis: Alveolar cancer."

CASE 5. W. C., age 33.

Family History and Past History: Negative.

Present Illness: In January, 1920, patient began to have pain in the region of the stomach, associated with belching of gas and heart-burn. He had no vomiting. Antacids did not relieve his symptoms; eating made them worse. The bowels were constipated all this time. Just prior to admission patient began to complain of dyspnoea and dizziness. He states that his abdomen began to swell about eight weeks ago.

On admission, September 17, 1920, examination revealed a well-developed and nourished male negro, showing signs of moderate loss of weight. Eyes, ears, nose and throat negative. Glands palpable in sub-maxillary, anterior and posterior cervical and inguinal regions. These are small and discrete. Over the chest wall there are eight nodules, presumably glands, from one to three centimeters across. These are slightly tender and are not adherent to the skin, but fastened to the fascia beneath. The large one feels lobulated. Small scars are found in the axillae from incisions through which the glands are said to have been excised at the Newton Hospital in August, 1920. Lungs are negative, except for a few medium moist râles on the right. Heart negative. Abdomen distended, with definite signs of shifting dullness. Succussion sounds and fluid wave are both easily elicited. No masses made out. Extremities show considerable wasting. Reflexes normal. Paracentesis of the abdomen done, and 2900 centimeters of blood-stained fluid removed. Abdomen injected with oxygen. X-ray shows the following:

"Liver appears slightly enlarged. Shadows in the abdomen indicative of fluid; no other pathology noted."

Urinalysis shows trace of albumin, many red cells, numerous hyaline casts and a few pus cells.

Patient feels fairly well, but will not eat.

September 17, 1920: Urine shows a large amount of albumin, a few red cells and a few hyaline casts; many leukocytes. Abdominal fluid shows specific gravity, 1012; white cells, 3100 per centimeter; red cells, 7000 per centimeter. Smear shows small mononuclears, 72; polymorphonuclear leukocytes, 28; no tubercle bacilli found. Culture showed an abundant growth of *B. Coli*. Albumin, 10 per cent.

September 23, 1920: Abdomen is filling up fairly fast with fluid. Patient has considerable discomfort on account of the distention. He was seen by medical consultant and a diagnosis of pulmonary tuberculosis and tuberculous peritonitis was made. Abdomen was tapped and nearly 6000 centimeters of blood-tinged fluid removed. Patient very weak and uncomfortable.

September 25, 1920: Condition much worse. Examination of the ascitic fluid shows no tubercle bacilli; blood count shows 3,448,000 red

cells; 8600 white cells; hemoglobin, 75 per cent.; 97 per cent. polymorphonuclear leukocytes; 2 per cent. small mononuclears; 10 per cent. large mononuclears.

Patient died September 26, 1920.

Autopsy performed shows briefly the following:

Peritoneal cavity contains about one quart of dark, straw-colored fluid. Peritoneum throughout has a whitish, granular appearance.

The liver reaches about two inches below the edge of the ribs. It is deep purple in color and shows numerous whitish nodules on the surface.

Diaphragm reaches to the fifth space on the left, and to the fourth space on the right.

Enlarged lymph glands can be felt behind the sternum.

Both lungs are adherent to the chest wall throughout.

The greater omentum is thickened and tough, and is studded throughout with small yellow tumors, about a millimeter or two in diameter. The surfaces of the large and small intestine and peritoneum are thickly studded with thousands of these pale, yellow tumors.

Heart not remarkable.

Left lung shows small, pea-sized nodules, scattered throughout both lobes. Cut surface shows normal amount of fluid. Nodules are rather tough on section and grayish-yellow in color. None of these nodules are broken down.

The right lung is also studded with these nodules.

The apices of the lungs show no special change.

The spleen weighs 200 grams, is somewhat enlarged, and very hard and stiff. The indentations in the margins are marked. Numerous hard, pale yellow nodules, about 1-3 of a centimeter in diameter, appear on the surface. On section, the spleen is tough and thickly studded with nodules, which project in places from the surface. These are yellow in color; none broken down.

The gall-bladder contains several friable stones and considerable sand. Attached to the neck of the gall-bladder is a hard tumor, the size of a walnut. On section, it is tough and pale yellow in color.

The liver weighs 1580 grams. Its surface is pale, and studded with nodules, similar to those found in the spleen. On section, the liver is filled with these nodules.

The kidneys weigh 150 grams each. Capsule strips easily. On section, the markings do not show well. The cortex cannot be sharply differentiated from the medulla. The aorta shows a moderate degree of fibrous sclerosis. The head of the pancreas is thoroughly invaded by a new growth which is tough and almost uniformly pale yellow in color. It shows a slight tendency to lobulation in places.

Diagnosis: Carcinoma of the pancreas, with

metastases in the liver, spleen, retrosternal lymph glands, and probably in the lung.

CASE 6. M. H., age 50.

Family History: Except for the death of a sister by cancer, family history is negative.

Past History: Patient had measles and scarlet fever at sixteen; influenza in 1919.

Present Illness: While in France in 1921, patient's trouble began with digestive disturbance and constipation, thought to be due to inadequate diet. The onset was slow and symptoms indefinite,—at times constipation being the most prominent symptom. His trouble continued up until the present time. Patient was admitted to this hospital September 19, 1921, for observation. Chief complaint at this time was pain after eating, associated with considerable gas in the stomach and constipation.

Physical examination shows a thin, fairly well developed white man, with evidence of marked loss in weight. Eyes, ears and nose are negative. Lungs show some increase in tactile fremitus on the right, with a hyperresonance on the left, from the fifth rib down. There are no other signs of pathology present. Heart is negative, except for slight enlargement of the right auricle. Abdomen is slightly distended, being hyperresonant throughout the epigastric region. There are no masses felt, no areas of tenderness, and no muscle spasm. Kidneys, liver and spleen are not palpable. The knee jerks are equal and active.

September 28, 1921: X-ray of chest shows moderate hilus and bronchial thickening; an occasional calcified nodule noted, otherwise negative.

October 2, 1921: X-ray of the gastro-intestinal tract shows stomach in the median, transverse position; peristalsis slightly increased. Duodenal cap shows some irregularity, consistent in both fluoroscopic examination and in the films. Six hours shows the stomach well empty. Twenty-four hours shows considerable angulation at the hepatic flexure, which appears low. Proximal portion of the transverse colon looped, and appears tied down to the caecum. Head of the barium column being at the descending colon, denotes no obstruction. Seventy-two hour plates give no further information.

October 16, 1921: In the meantime the patient's symptoms remained essentially unchanged as they have since the onset, that is, (1) constipation, (2) two hours after every meal, has a dull, burning sensation in the right hypochondrium, always arising there and then radiating to the left side and downwards. It is not acute in any way; is accompanied by more or less intestinal flatulence. Symptoms gradually pass off after an hour or two. They are no worse after one meal than another, because patient eats so little; avoids meat and vegetables which seem to form gas. Appetite continues to be poor.

Constipation is relieved somewhat by fluid extract of cascara.

October 20, 1921: Symptoms unchanged; feels sure he has lost thirty-five pounds since the onset of the disease. History would seem consistent with pathology in the right lower quadrant. This is backed up by the x-ray finding of adhesions in this region. A barium enema and x-ray shows considerable angulation at the proximal portion of the transverse colon. Under the fluoroscope it is impossible to separate this area of kinking and the caecum.

October 29, 1921: Operation is being considered. Further questioning of the patient gives the history that last July, while at home, he passed a kidney stone. He was x-rayed, and the result was said to be positive for stones in the right kidney. Therefore it is deemed advisable to have the Urological Service study the case further. X-rays show two discrete foreign bodies in the region of the right kidney pelvis, presumably stones. Urine examination shows slightest possible trace of albumin, no sugar, and a few hyaline casts.

November 15, 1921: In spite of the fact that in this case we have definite evidence of stone in the kidney, the present symptoms are very definitely of intra-abdominal origin.

November 16, 1921: Under nitrous oxide anesthesia, an exploratory midline incision was made, and the abdomen opened. There was no evidence of gastro-intestinal obstruction. Gall-bladder was somewhat enlarged; no evidence of stones. In the region of the head of the pancreas, there was present a scirrhus mass, about the size of a fist. Another hard tumor, about the size of an almond, was found above the right kidney. Section was removed from the pancreas mass, and sent to the laboratory. Gauze drain was inserted, and the abdomen closed.

November 21, 1921: Patient's condition remained about the same until 7.45 this morning, when his color suddenly became poor, pulse rapid, and patient died at 9.05. Autopsy permission was not obtained. Laboratory findings are as follows:

"Strands of carcinomatous tissue lying in a stratum of fatty tissue. Diagnosis: Carcinoma, head of pancreas."

CASE 7. C. G., age 34.

Family History: Mother died of "womb or stomach trouble," and father of "kidney trouble."

Past History: Practically negative, up until June, 1916, when he developed digestive symptoms, appearing as nausea and dull, gnawing pain in the epigastrium. These symptoms gradually grew worse, and seemed to appear about two or three hours after meals. He occasionally vomited bile-colored material; very little food in the vomitus. One morning at work, after eating an apple, patient was seized with a severe

attack of pain in the epigastrium. He felt weak, dizzy, and fell to the floor. On regaining consciousness, he vomited a large amount of "coffee-ground" material, and also some bright red blood. Patient was taken to the Peter Bent Brigham Hospital, where condition was diagnosed as "Ulcer of Stomach." Gastrojejunostomy was performed on December 7, 1916, at the above-named hospital, for obstructing carcinoma of the stomach. Patient was relieved of all symptoms, gained in weight, and seemed to be in perfect health.

In May, 1918, patient was struck in the lower chest and epigastrium by a swinging breech-block, while dismantling gun, but was not rendered unconscious. Two or three days later, while stooping down to pick up something, he felt dizzy and sick to his stomach, vomited yellow, watery material, followed by about one-half an ounce of bright red blood. Patient was treated at the company infirmary for a few days and then returned to duty. He had occasional dull pains in the lower chest and epigastrium up until June, 1918, when he began vomiting from one to two hours after meals. October 26, 1918, immediately after breakfast, was nauseated and vomited a large clot of dark brown blood, followed again by bright red blood. Operative procedures were recommended while in France, but never performed. In March, 1919, pain again reappeared, more severe than ever before. Patient felt good off and on, but had occasional gastric attacks; appetite was fair, with no loss of weight, but gradual loss of color.

In January, 1920, all symptoms of distress, nausea and vomiting, and pain in the lower left chest and lower stomach region reappeared more frequently than before, with about the same intensity. Pain became more severe in February, 1920.

Patient was admitted to the U. S. Veterans' Hospital No. 36 first on April 5, 1920. At this time he complained of cramping or drawing up of all fingers, both hands, especially little fingers; pains and tightness across the sternal region of the chest. A diagnosis of Dupuytren's contraction of fifth digit, both hands, was made, —improved by operation. Patient also vomited occasionally at this time. He was discharged on October 6, 1920.

On December 16, 1920, patient had another gastric hemorrhage, which was possibly one quart or more in quantity,—"coffee ground"—and which was again followed by blood.

Patient was re-admitted to this hospital on December 18, 1920, with complaints of weakness, dizziness, spots before eyes, nausea, gaseous eructations and the tasting of blood in mouth. The question of ulcer of the stomach was changed to carcinoma of the stomach, based on the findings at operation at the Peter Bent Brigham Hospital in 1916. Patient also showed localized areas of swellings, characteristic of angioneurotic edema. This, however, gave him

very little trouble. He was discharged on July 23, 1921, with a diagnosis of Carcinoma of Stomach,—condition much improved.

In September, 1921, symptoms of vomiting and dizziness again reappeared. On September 18th, patient coughed up a large clot of blood, solid and dark brown in color, also vomited a large amount of "coffee-ground" material.

Again re-admitted to this hospital on November 21, 1921. Complaints were practically the same as on previous re-admission. Food was said to have no relation to pain, unless the patient was hungry along with it. He has lost about seven pounds in weight; appetite is poor, but bowels regular; no marked dyspnoea on exertion.

Examination revealed the following:

General appearance: white male, well developed and well nourished. Apparently anemic. Nose: deviation of nasal septum to the right, with a basal ridge on the left and spur on the right. Partial obstruction of the nares. Moderate hypertrophy of the middle turbinate on the left. Mucous membranes normal. Abdomen: tympanitic throughout. No masses or muscle spasm; slight tenderness in the epigastrium. Intestines negative. Liver palpable at costal margin. Spleen and kidneys not palpable. Skin negative, except for a scar extending in the midline from the epigastrium down to within one inch of the umbilicus, from previous laparotomy, supposedly for carcinoma. Bones and joints: the little fingers of both hands show ankylosis of the middle joints.

March 6, 1922: X-ray of gastro-intestinal tract taken on this date reveals the following:

"Six hours after motor meal, fluoroscopic examination shows meal in lower ileum, caecum and ascending colon. These structures of normal contour and position, flexible and movable.

"Liquid meal was given and revealed a stomach of peculiar shape, vertical in position, having a club-like appearance, hypotonic in type. Meal was seen passing gradually, but no duodenal cap was discernible. Lateral view showed meal leaving the stomach through the posterior wall, as if a gastroenterostomy had been performed. The outline of the stomach is irregular, and shows numerous small mouse-eaten filling defects. These are discernible in the immediate plates where the stomach, almost empty, has an hour-glass shape. Twenty-four-hour plate shows trace of meal in caecum, slight trace in transverse and descending colon, remainder in rectum.

"Gastro-intestinal examination is very suggestive of gastric carcinoma."

April, 1922: Patient sleeps fairly well at this time, but still complains of gastric soreness and pains in the chest.

May, 1922: Patient has lost about fifteen pounds in the past two months. He still complains of occasional nausea and eructations of gas and acid fluid. Patient has a definite cachec-

tic look. Examination of the abdomen reveals a definite mass in the epigastrium.

CASE 8. W. T. W., age 48.

Family History negative.

Past History: Negative, except for measles, mumps and whooping cough when a child.

Present Illness: Trouble dates back six weeks, when patient ate some canned salmon for supper, followed three hours later by severe cramps over the entire abdomen. He had three definite attacks of cramps, which lasted about fifteen minutes each. Took two doses of castor oil, with no results until the following morning. He had no vomiting, and although he felt bad the next day, he continued his work. Patient has worked every day until about two weeks ago. Following the first attack, he complained of a dull pain and distressed feeling in the epigastrium; was tired out, and felt unable to do his work. This condition continued until two weeks ago, when he began to vomit. Vomiting was followed by a short period of relief. He has not vomited blood. About a week ago patient noticed that his abdomen was beginning to swell. This has increased considerably since. He has none of the old indigestion distress, but suffers considerably from the swollen abdomen. Patient considered himself perfectly well until the onset six weeks ago. He has lost considerable weight in this time.

Admitted to U. S. Veterans' Hospital No. 36, March 17, 1921. Examination as follows:

Well developed and nourished, but has apparently lost some weight. Skin and conjunctivae pale. Eyes, ears, nose and throat negative. Chest and lungs show a few crepitant and subcrepitant râles before and following cough, over both lower lobes, posteriorly. This is more marked on the right side. An occasional crepitant râle can be heard over the right apex. Heart is negative, except for some lateral enlargement. Abdomen distended with fluid. Fluid wave felt; signs of shifting dullness present. A mass, the size of a small grape-fruit, can be felt in the epigastrium. There is no special tenderness and no muscle spasm. Urinalysis shows slightest possible trace of albumin, and a very rare hyaline cast. Blood count shows 3,080,000 reds and 4,000 whites; hemoglobin, -65 per cent; small mononuclears -11 per cent; large mononuclears -1 per cent; neutrophils -85 per cent.

March 18, 1921: Abdomen tapped and 2,000 c.c. of straw-colored fluid removed. Blood Wassermann negative. X-ray of the stomach, following a bismuth meal, shows annular carcinoma, involving the antrum and pyloric end of stomach. X-ray of the lungs shows no evidence of metastases.

March 21, 1921: Report of fractional gastric analysis, following Ewald meal, shows no free acid, and a very low total acid. Blood is present in two specimens. Lactic-acid is present in all.

Fasting contents show many squamous epithelial cells; numerous Oppler-boas bacilli. Stomach empty in one hour and one-half. Patient's pulse is very poor, and condition considered grave. Fifteen minims of tincture of digitalis given.

March 24, 1921: Patient sleeps a good deal; no particular discomfort. Report on the ascitic fluid received, and shows a cell count of 990; differential count—large mononuclears -2 per cent.; small mononuclears -13 per cent.; neutrophils -85 per cent. Specimen negative for tubercle bacilli. Albumin -12 per cent.

April 5, 1921: Patient's condition averaged about the same as usual. Paracentesis of the abdomen was to be considered today. Patient died at 3.10 A. M.

Autopsy performed, and shows the following points of interest:

Peritoneal cavity contains six quarts of ascitic fluid.

The heart is nearly as large as two of the individual's fists. There is a large amount of epicardial fat. Heart weighs 500 grams. The right auriculoventricular valve measures 140 millimeters in circumference; the left auriculoventricular valve, 115; pulmonary valve, 85; aortic valve, 75. There is a moderate degree of fibrous sclerosis in the aortic valve, on the surface of the aortic bulb, and in the coronary arteries. There are no changes in the other valves.

The lungs are essentially negative.

The stomach shows a large mass, the size of the subject's fist, on the anterior wall of the stomach, near the pylorus, extending up onto the lesser curvature. This mass is five inches long, four inches wide and one inch thick. It protrudes into the stomach surface, and has an irregular, cauliflower appearance. It is tough and hard, fairly well circumscribed, but has no capsule. Pylorus is not invaded.

Spleen and kidneys are negative.

The liver weighs 3,050 grams. It is pale, mottled and yellowish. On the right lobe there is a large, shrunken scar. On the anterior lower margin of the left lobe there is a large, pale, hard mass. There is a similar one on the left side of the left lobe. On section, the liver is hard, and shows scattered masses of hard, pale tissue. Some of these measure two inches in diameter.

There are numerous large retroperitoneal glands in the upper part of the abdomen. Aorta shows a moderate degree of sclerosis.

Anatomical diagnosis: Carcinoma of the stomach, with metastases of the liver and retroperitoneal glands. Heart: Myocarditis, dilation, hypertrophy.

CASE 9. A. D., age 48.

Family History: Mother died of nephritis; father of "old age." No tuberculosis, cancer or insanity in the family.

Past History: Patient had typhoid fever

twelve years ago; measles and whooping cough. Otherwise he had always been healthy.

Present Illness dates back to August, 1919, when he began to have trouble with his stomach. Was nauseated and troubled with considerable gas formation. In September, 1920, patient was operated upon at the Peter Bent Brigham Hospital for gastric ulcer. On admission to that hospital, he gave a history of pain in the epigastrium for the preceding three months, coming on about an hour after eating; somewhat relieved by drinking hot water. Pain became so steady that during the last month he had very little freedom from it.

Gastric bismuth studies showed a small defect in the lesser curvature, with an irregular duodenum. There was no stasis. No masses could be felt, but there was moderate epigastric tenderness.

Operation under ether. "Stomach presented a most remarkable condition of induration posterior to the lesser curvature, half way from the pylorus to the cardia. Induration on the anterior wall extended one-third way across the stomach, and posteriorly to the great curvature. The mass was firm, slightly boggy, as though a spreading infection of the gastric wall were present. Many glands were involved, inflammatory in character, especially those of the gastrohepatic omentum. Immediate pathological examination showed what at first sight seemed to be a carcinoma, but a frozen section from two places showed nothing but ulcer. This case is considered to be on the border line of a phlegmonous gastritis. Sleeve resection was performed. Postoperative x-ray shows the stomach to be considerably reduced in size, and shows a six-hour residue considerably reduced in amount. The stomach was somewhat sluggish in peristaltic wave, as the barium was going through. The head of the barium column was in the caecum, at the end of six hours.

"Diagnosis: Floor of Gastric Ulcer."

On account of the present complaint of pain and severe constipation, patient was admitted to this hospital for treatment May 13, 1921. Examination on admission was practically negative, except for healed operative scar in the abdomen, marked tenderness on palpation throughout the epigastrium, and a palpable mass.

May 16, 1921: Considerable difficulty in getting patient's bowels to move. Enemas and castor oil given without avail. Blood Wassermann negative.

May 18, 1921: Gastric analysis shows complete absence of hydrochloric acid. Blood was positive in several tubes. X-ray of the gastrointestinal tract reveals a filling defect involving the antrum of the stomach. Pyloric portion of first part of duodenum not filled at any time. Peristalsis lost well up in the fundus. Condition decided to be inoperable.

June 6, 1921: Patient gradually getting weaker, vomiting throughout the day. Vomitus contained "coffee-ground" material.

June 11, 1921: Patient slowly sank into an unconscious state, and died at 9.30 A. M.

Autopsy shows a mass, the size of a large grape-fruit, firmly attached to the lesser curvature of the stomach, to the right, and behind the pylorus. It invades downward, across and around the duodenum and pancreas. On section, this tumor is rather hard, and shows small areas of necrosis. Near the pylorus, on the surface of the inner wall of the stomach, there is a large mushroom-like ulcer, about one and one-half inches wide, with raised edges. This lies opposite the tumor.

Diagnosis: Carcinoma of the Stomach.

The cases which follow, are cases of the mesoblastic or endoblastic type, not in themselves remarkable, in the age of the cases affected, but included in this paper for completeness in the study of malignancy in the earlier years, and for the intrinsic interest of certain of the cases.

CASE 10. H.K.J., age 29.

Family History: Mother in good health; father died of cancer of the stomach. Two brothers and one sister dead,—causes unknown.

Past History: Patient has always enjoyed good health up until the present illness.

Present Illness: Was taken sick in February, 1920, with a bad cold. Since that time he has been a bed patient, has lost weight and feels tired most of the time. During this period, patient began to have trouble with his stomach in that he had to be careful about his diet, always felt a dull, distressed feeling in the region of his stomach; has always been constipated. He has been having night sweats ever since the onset.

Physical examination on admission, June 1, 1920, reveals a small man, considerably emaciated. Heart negative. Lungs: left apex shows bronchial breathing; a few moist and crepitant râles in the axillary space, from the third rib down. There is a small area of roughened breathing with râles over the base posterior,—at the lower margin of the lungs, about one inch and one-half from the spine. The right lung apex is slightly duller than the left. In the axillary space, at the level of the third rib, is an area about $2 \times 1\frac{1}{2}$ inches, which shows rough bronchial breathing, with numerous moist râles. The abdomen is tympanitic, except in the flanks. This dullness is found to shift with position. Fluid wave can be elicited. Recti muscles are rigid, and show muscle spasm. The entire abdomen is tender to pressure. On admission, the diagnosis was that of Tuberculous Peritonitis. Patient is running considerable fever. Urine is entirely negative. Blood count shows 3,900,000 reds; 70% hemoglobin; 11,400 whites. Sputum is negative for tubercle bacilli. Blood Wassermann is negative. Patient runs a temperature

from normal up to 103.4. Pulse ranges from 85 to 95.

June 7, 1920: Sputum is negative daily. X-ray of chest shows slight thickening about the hilus. There are many annular areas of increased density, constituted of dilated bronchi and bronchioles.

Conclusions: Findings consistent with chronic bronchitis, with bronchiectasis.

Patient seen by surgical consultant and operation advised after a few more days of observation.

June 11, 1920: Fees negative for blood; show occasional pus cell; no amoebae.

June 17, 1920: On the advice of both medical and surgical consultants, exploratory laparotomy was advised, probable diagnosis being tuberculosis of the peritoneum, and a question of malignancy. Under nitrous oxide ether anesthesia, the abdomen was opened through a midline incision. Many retroperitoneal glands were found, a few of which showed necrosis. Two wicks were placed in the abdomen, and the whole closed in layers.

June 20, 1920: Patient's condition seems to be improving; abdomen draining profusely through the abdominal wound.

June 23, 1920: Patient suddenly took a bad turn last evening and died at 5:00 A. M. this morning. Permission for autopsy was granted. Report follows:

"Large retroperitoneal mass found back of the attachment of the mesentery. This mass has a large necrotic cavity in it, opening into the peritoneal cavity. There are numerous, slightly enlarged mesenteric glands.

"The left lung is attached to the wall by numerous adhesions. The parietal pleura, near the upper part, shows two groups of fungus-like white masses, very hard, but not calcified,—feels like cartilage.

"The lungs are negative for tuberculosis.

"The heart is also negative.

"Stomach—About two inches below the pylorus is a hard sear, about one centimeter in diameter, on the posterior wall of the duodenum. In front of the duodenum, and around the pancreas, is a mass of tough tissue, which on section shows discrete, yellowish areas, mixed with brownish-red areas.

"Liver shows large and small lumps, scattered over the surface, varying in size from one-half centimeter to three centimeters in diameter. They are pale and project from the surface.

"The rest of the organs are practically normal."

Two specimens were sent for laboratory examination to the Hygiene Laboratory, Washington D. C., and the following report given:

"Retroperitoneal gland shows Hodgkin's Disease."

Another specimen was sent to Dr. F. B. Mallory at the Boston City Hospital. His report was briefly as follows:

"Strongly suggestive of gumma. Examination negative for tubercle bacilli. The glands were much enlarged and showed extensive necrosis, but definite cells. It is possible that the lesion was a lymphoblastoma specimen with extensive necrosis, but no definite cells. The subsequent history ought to tell, because in the latter case I should expect the patient to be dead by this time."

CASE 11. W. F. J., age 20.

Family History: Father and mother living and well. Two brothers living and well. No tuberculosis, cancer or diabetes in the family.

Past History: Negative, except for measles, diphtheria, chicken-pox and whooping cough in childhood.

Present Illness: This dates back to February, 1919, when the patient developed a mild attack of influenza, lasting ten days. This was followed by persistent pain in the back and chest. Patient has been in run-down condition ever since. He developed enlarged glands in groin and both axillae a few months after the influenza.

Patient was admitted to this hospital January 29, 1921, complaining of shortness of breath, pain, constant throughout his chest, loss of weight and poor appetite.

Examination showed a fairly well developed, but poorly nourished young man. He presents a small chain of glands, both sides of neck, above the clavicles. There are a few palpable glands in the left axilla, right lobe and both groins. The lungs show slight dullness over both apices posteriorly, with prolonged, harsh respiration; no râles or increased voice sounds. Heart is negative. Abdomen is tender throughout; no masses or spasm present. There is thinning of the right epididymis, non-tender, non-inflammatory. The hands and feet are slightly cyanotic.

February 1, 1921: X-ray of chest negative, except for occasional dense, calcified nodules in the hilus. Blood examination shows 4,900,000 reds; 3,700 whites; 70% hemoglobin; 6% small mononuclears; 35% large mononuclears; 56% neutrophils; 1% eosinophiles; 2% basophiles.

February 11, 1921: White blood count—2,800. Patient referred to the Collis P. Huntington Memorial Hospital for consultation as to the advisability of radium therapy. It was his opinion that the condition was definite Hodgkin's Disease, and arrangements were made for treatment.

February 16, 1921: In report of treatment—patient slightly improved.

For the next two months patient continued to lose weight and strength.

August 12, 1921: On account of the low number of red cells and the general appearance of marked anemia, patient was transfused, and 500 c.c. of whole blood given. Examination at this time reveals a mass, about the size of a small grape-fruit, in the left hypochondriac region, ir-

regular in outline and slightly tender to palpation.

For the next week or so condition remained practically unchanged. Blood picture has improved, but patient has had several chills.

August 27, 1921: Transfusion of 500 c.c. of whole blood.

September 3, 1921: Transfusion of 600 c.c. of whole blood.

After each transfusion patient's blood picture improved, but there was no definite improvement in the general condition. He continued to grow weaker, and died November 14, 1921.

Autopsy performed.

"There is a large retroperitoneal mass extending up to the edge of the ribs and down to the level of the anterior superior spine.

"Lungs are practically negative, except for the appearance of several glands throughout the hilus.

"Spleen is over nineteen centimeters long, ten centimeters wide and six centimeters thick. It weighs 510 grams. It is very dark in color, rather soft in consistency, and on section shows large prominent corpuscles.

"In the region of the spinal column, behind the peritoneum, is a large mass, 170 centimeters long, 130 centimeters wide and about 70 centimeters thick. It is lobulated bi-laterally with a groove down the center. The top of the mass is at the level of the seventh rib, and the lower edge at about the level of the umbilicus. The mass is firmly fixed to the posterior wall. It cannot be peeled, and must be cut away. This mass is made up of a group of very much enlarged lymph glands. It weighs 790 grams.

"Diagnosis: Hodgkin's Disease."

CASE 12. G. H., age 22.

Family History: Father's mother died of cancer of the face. Father's father had a growth of the lip removed.

Previous History: Negative, except for diphtheria, measles and mumps.

Present Illness dates back one year. Onset with pain in the lumbar region. Consulted doctor, who strapped his back. Pain was relieved for about seven months, and then began again. It was worse at night, and in October, 1920, became severe. Patient went to the M. G. H. Out-Patient Department, for treatment. There he had two casts applied. Pain remained in the lumbar region, and never radiated. In the latter part of November, his back became so stiff that he could not bend over. Condition was diagnosed as chronic arthritis, and was later thought to be tuberculous of the spine, and treated as such. After the last cast had been applied, patient began to have pain over his hips; noticed that his feet and legs felt heavy on getting up in the morning. This gradually increased. He removed the cast, and at the same time noticed a loss of muscle power in the legs. He began to lose sensation from the waist

down. This gradually increased, until about ten days ago, when he was completely paralyzed. Two days later he lost control of the bowels. About five days before admission to this hospital, he had to be catheterized, and at the same time noticed that he had a small lump on his back, to the left of the spine, near the point of the scapula. It increased in size, and then went down some, later becoming larger than ever.

Patient was admitted to this hospital March 28, 1921, chief complaint being pain in the back, paralysis of motion and sensation from the ribs down, and incontinence of urine and feces.

Examination on admission revealed a fairly well developed and nourished man. Heart showed a loud systolic murmur heard over the entire chest, best over the base of the heart. Lungs showed slight dulness over the right apex. Flatness noted over the left base, posterior from the fourth dorsal spine down. Breath sounds are normal, except over the flat area in the left base. Here they are absent. Whispered voice also absent here. Abdominal wall looks otherwise negative. Patient presents a complete motor and sensory paralysis below the tenth dorsal nerve. All reflexes absent below this point. He has no control of sphincters. Patient presents marked tenderness from the third to the ninth dorsal spine. To the left of the spine, at the level of the sixth vertebra, is a swelling about the size of a goose egg, which is firm and quite tender. Blood Wassermann is slightly positive. Blood count shows 4,800,000 reds, 7,200 whites; 75% hemoglobin.

April 1, 1921: The swelling on the left back explored with needle. Nothing found.

April 15, 1921: X-rays of the chest and spine show as follows:

"The thoracic vertebrae appear clear-cut and distinct, apparently not diseased."

April 29, 1921: Patient vomited large quantities of dark-colored fluids. The stomach is greatly dilated, filling most of the abdomen. Several small masses can be felt in the abdomen, at times one in the epigastrium, and several lower down.

May 3, 1921: Patient slightly improved, having recovered from the dilated stomach. He is considerably weaker.

May 7, 1921: Patient's pulse became poor, was cold and cyanotic, and died at 3:15 a. m.

Autopsy:

"Lower lobe of the left lung is firmly attached with adhesions throughout. There is a small amount of fluid in the left pleural cavity.

"The heart showed a congenital stenosis of the pulmonary valve, with hypertrophy of the right ventricle.

"Left lung: the lower lobe of the left lung, on its outer surface, feels hard and not at all crepitant. The upper lobe, on section, is pale, and no fluid drips from the surface. The lower lobe on section is like liver in consistency, dark purple in color, and a small piece sinks in water. The

pleura in this region is about one-quarter of an inch thick. The lung pleura and tissue behind the left lung, are thoroughly grown together. In the midst of this mass is a large tumor, nearly three inches across. On section it is dark purple in color, rather soft and watery, and has invaded the vertebrae behind.

"The other organs are not remarkable, except for the tumor which seems to have invaded the cord, at the level of the ninth vertebra. On the dorsal aspect of the cord, the tumor runs from the top of the tenth to the bottom of the seventh dorsal spine. This is about as wide as the cord, about two and one-half inches long and one-quarter of an inch thick. This tumor is firmly adherent to the dura, but can be dissected off; the dura itself, apparently not being invaded. The tumor does not involve the cord, but on cross sections the markings of the cord are not as clear in the region of the tumor.

"Diagnosis: Round Cell Carcinoma."

No differentiation can be made between sections of the tumor removed from the dura of the spinal cord and those taken from the pleural cavity. The tumor is extremely vascular, blood vessels being in all stages of completeness. The tumor mass is made up of small, round cells, which are massed together heavily. Occasionally the cells are grouped, as to suggest an alveolar arrangement.

CASE 13. J. J. C., age 29.

Family History negative for tuberculosis, cancer or insanity.

Past History essentially negative.

Present Illness: While in service at Camp Dix, N. J., August, 1918, patient states that he was struck in the right shoulder by the kick of a rifle. Three days later he developed a swelling at the base of the neck, on the right side. He had no pain, but the tumor gradually enlarged and interfered with his wearing of a collar. In May, 1921, patient became alarmed at the continuous growth of the tumor and went to the Massachusetts General Hospital, where he had the neck glands excised. Eight weeks ago patient noticed a lump in the right axilla, and was admitted to this hospital September 6, 1921, for this condition. Abstract from the Massachusetts General Hospital records show the following: "May 3rd—operation and biopsy. Gland, the size of a marble, excised from the left side of neck. Microscopic examination shows a neoplasm composed of eight typical cells of the lymphocyte series. There is a marked fibrosis with eosinophilia. Masses of giant cells with multiple nuclei are conspicuous.

Diagnosis: Malignant Lymphoma.

May 11 operation.—excision of glands of neck. Tumor mass, the size of a baseball, was removed. Examination of this tissue revealed the same histological picture as on May 3rd."

On admission to this hospital, patient had no complaint, except the presence of the tumor.

Examination disclosed a moveable, firm tumor mass, about three centimeters in diameter. The rest of the examination was negative.

September 11, 1921: Blood examination shows 4,872,000 reds; 7,800 whites; 85% hemoglobin; 9% large mononuclears; 14% small mononuclears; 10% transitionals; 1% eosinophiles; 75% neutrophils. Urine examination—negative. Blood Wassermann—negative.

September 16, 1921: Radical excision of all glands of the axilla was performed. Wound healed by first intention. Microscopic examination of the tissue removed shows invasion of the lymph node by many small cells which have a very dark stained nucleus. These cells replace the normal lymph structures in many places. Growth is so rapid that many cells are necrotic.

Diagnosis: Malignant Lymphoma.

Patient made an uneventful recovery and was discharged from the hospital on October 25, 1921. There was no evidence of metastases at this time.

CASE 14. P. DeF., age 27.

Family and Past Histories are negative.

Present Illness: In June, 1920 patient's brother states that the patient appeared rather sleepy most of the time. He would often fall asleep when not busy at work, but seemed in good health at all other times. During the latter part of August, 1920, the right eye began to close up. About the middle of September the left arm became so weak that articles would slip out of his hand. About two weeks later patient noticed that the left leg also became weak. This condition gradually increased. At present he is unable to stand or walk, cannot sit up, speech is blurred and has difficulty in swallowing.

Examination on admission to this hospital, December 24, 1920, reveals the following:

Eyes: Ptosis of right upper lid. Eyeballs practically fixed; very little lateral movement possible. Pupils of medium size; react easily to light and distance. Ears negative. Hearing considered normal. Mouth: Tongue protrudes to the left on extension; the lips to the right, when patient shows teeth. Throat: Soft palate moves a little; otherwise negative. Face: Brows wrinkle well—better on the right than on the left. Left side more flaccid than right. Chest: Heart normal. Lungs: negative, except for a few rales in the right axillary space. Abdomen negative. Reflexes: Babinski and Oppenheim negative. Slight ankle-clonus present. Suggestion of Kernig. Hyperactive knee reflexes. Left leg and arm spastic; no muscular movements possible. O. D. practically obliterated; veins distended, some exudate. O. S. much obliterated; can be seen partly on the temple side; veins distended, some exudate. Blood pressure: Systolic—122; diastolic—80.

January 5, 1921: Examination by the ophthalmologist reveals choked disc and complete oph-

thalmoplegia, both eyes. A tentative diagnosis of brain tumor, involving the brain stem, was made. Spinal fluid on this date is negative for the Wassermann reaction; blood count practically normal.

From the time of admission until the time of death on January 12, 1921, patient was in practically a semi-conscious condition.

Autopsy was performed, with findings in brief as follows:

There is nothing remarkable about the inner surface of the skull or about the surface of the dura. The brain weighs 1580 grams. On section, the brain reveals tumor on the right optic thalamus. The most ventral section appears merely slightly pinkish. Gradually the color becomes darker red and the consistency softer, and finally a short distance ventral to the pulvinar, the tissue is completely broken down into a dark grayish mass. This broken-down mass is surrounded by a tough gray wall, about one millimeter thick. The ventral two thirds of this abnormal structure is not sharply separated from the normal tissue of the thalamus, but gradually merges into it. The whole interior of the thalamus is involved, leaving a shell of apparently unaffected tissue on the outside, about one-half centimeter in thickness. Microscopic section reveals numerous glia cells with varying amounts of fibrous tissues, very vascular.

Diagnosis: Glioma of the Optic Thalamus.

TUBERCULOSIS OF THE BREAST, WITH THE REPORT OF TWO CASES.

By P. H. LEAVITT, M.D., BROCKTON, MASS.

ONE of the rarest forms of tuberculosis with which we have come in contact is that of infection of the mammary gland. About 200 cases have been reported, and these by a large number of operators. Undoubtedly more cases have occurred and remain either unreported or not recognized.

It was first reported about 1829 by Sir Astley Cooper, who described the gross appearance of the lesions and referred to it as "scrofulous swelling of the bosom," concluding his paper with the following—"they produce no dangerous effects and do not degenerate to malignancy. They do not require operation and indeed it would be impossible to remove them."

Lancereux in 1860 was the first to make a diagnosis from the examination of the histological structure of the part removed. Dubar in 1881 was the first to describe the microscopical appearance of the pathology. He described the two types which we see today and named them nodular or discrete, and confluent.

Durante and McCarthy² of the Mayo Clinic reported in 1916 an incidence of .51% over 11 years, in relation to other pathological conditions of the breast. Baer and Reis³ in April, 1921, reporting a large series of breast infections, found no involvement by the tubercle-

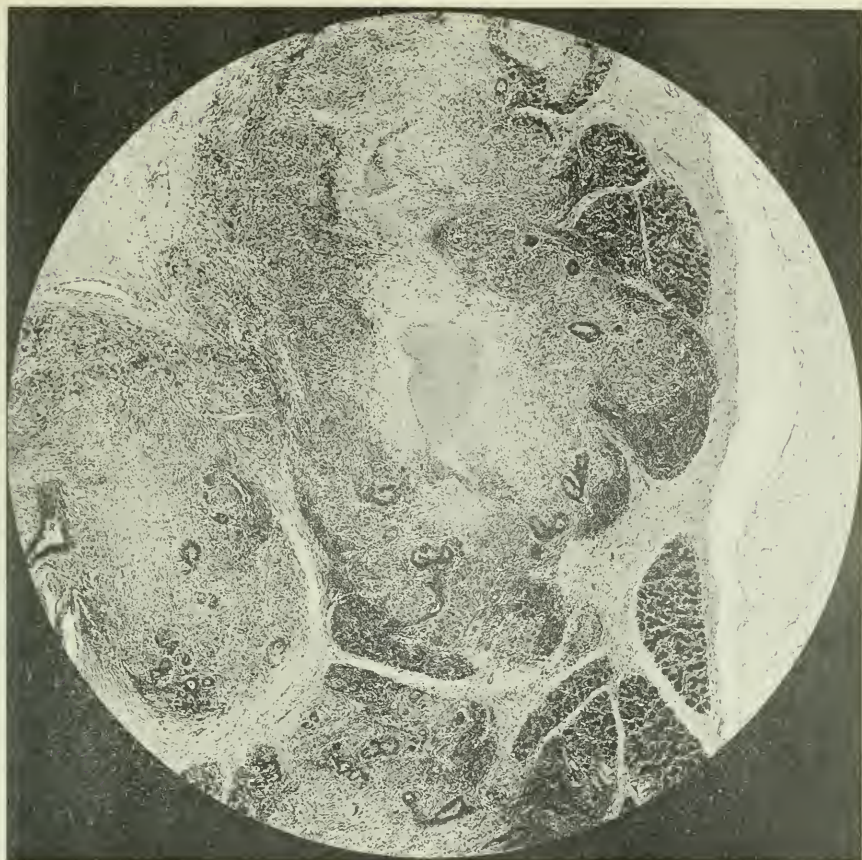


FIG. 1. Case 1. Low Power. Light area shows caseation in glandular tissue. Darkened area shows normal gland.

bacillus. Cheever⁴ in 1921 reported four cases in a total of 228 breast cases at the Peter Bent Brigham Hospital, since 1913, an incidence of 1.7%. Deaver and McFarland⁵ report an incidence of less than 1%. Scott⁶ of London in 1905 found the occurrence 1.3%.

The mode of infection is subject to dispute. Gatewood¹ believes that the infection is secondary to a retrograde lymphatic involvement from the axilla or from a primary focus in the lungs *via* Grossman's path and Rotter's lymph nodes, and advances as proof the fact that so far a case of tuberculous breast has not come to autopsy with tuberculosis confined to the breast. Of course it is true that practically every death that comes to autopsy shows evidence of tuberculosis either in lungs or abdominal cavity, so the above proof is not necessarily correct, though the assumption of that origin is reasonable.

The cases reported are as a rule in apparently healthy condition, though one of our cases was in a woman of tired, emaciated appearance. Trauma does not seem to bear a definite relation to the disease. Age is variable, though very few cases are reported after 45, none below 20. The sex incidence is predominantly female.

In involvement of other superficial glands by tuberculosis, entrance by way of, first—blood, second—lymph stream, third—by direct extension, is admitted. There are four ways in which the invasion of the breast might occur. The disease may enter the breast in any of the above ways, or it may enter through a cracked nipple, though I believe this last is the most unlikely. As in other glands, the source of invasion may vary and each case should be judged by the general picture and of course the local findings.

The general appearance of the nodular or

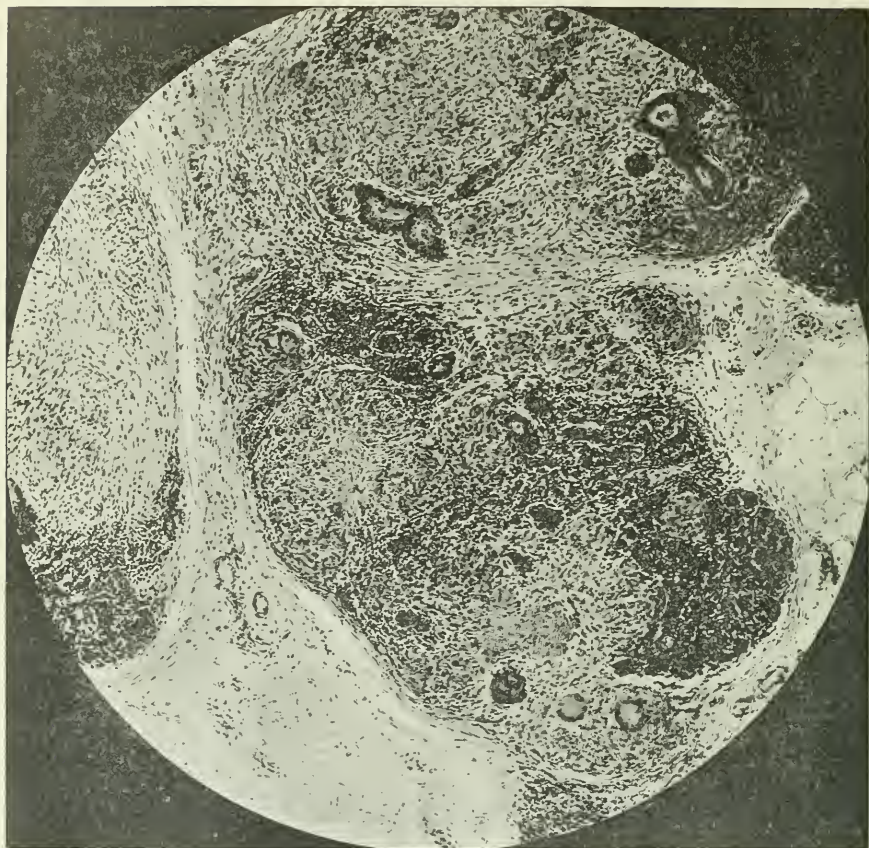


FIG. 2. Case 1. Medium Power. Upper right—normal gland; beneath—the lymphatolytic infiltration and two giant cells.

discrete type is that of a small lump in the breast. Halsted and LeCount found the lesion in the upper outer quadrant. The rest of the literature rarely mentions any special portion of the gland attacked. When seen early the gland is movable, the skin over it soon presents a pig-skin like appearance and later redness and fluctuation may appear. As these signs appear the lesion becomes more immobile. The nipple may be retracted early or late. Glands in the axilla are about equally present or absent in the early stages. The growth of the lump is slow and painless, and as it increases the involved area may break down, then pain, soreness and fluctuation may appear. Then, too, the involvement of the axillary glands is more marked, ranging from 70-80% of cases. The involvement of the axillary glands made early observers positive that the disease was always primary in the axilla. They probably missed the disease in the

breast entirely until it became larger. It would obviously be noticed earlier in the axilla.

The differential diagnosis is of course, first, from carcinoma. More often than not it cannot be made except at operation. Several breasts have been removed and axillae dissected because of uncertainty even at that time. It is common to find in both cases, retraction of the nipple and painlessness. Carcinoma is, however, usually faster growing; but this point alone is of course not enough for a diagnosis.

Adenofibromata are slow growing and painless and when they have undergone cystic degeneration, the result resembles the changes which take place often in tuberculosis of the breast. In differentiating, however, the tubercular nodules are not so freely movable, because of the fibrous tissue which surrounds them. Then, too, involvement of the axillary glands is common with tuberculosis of the breast, but never with

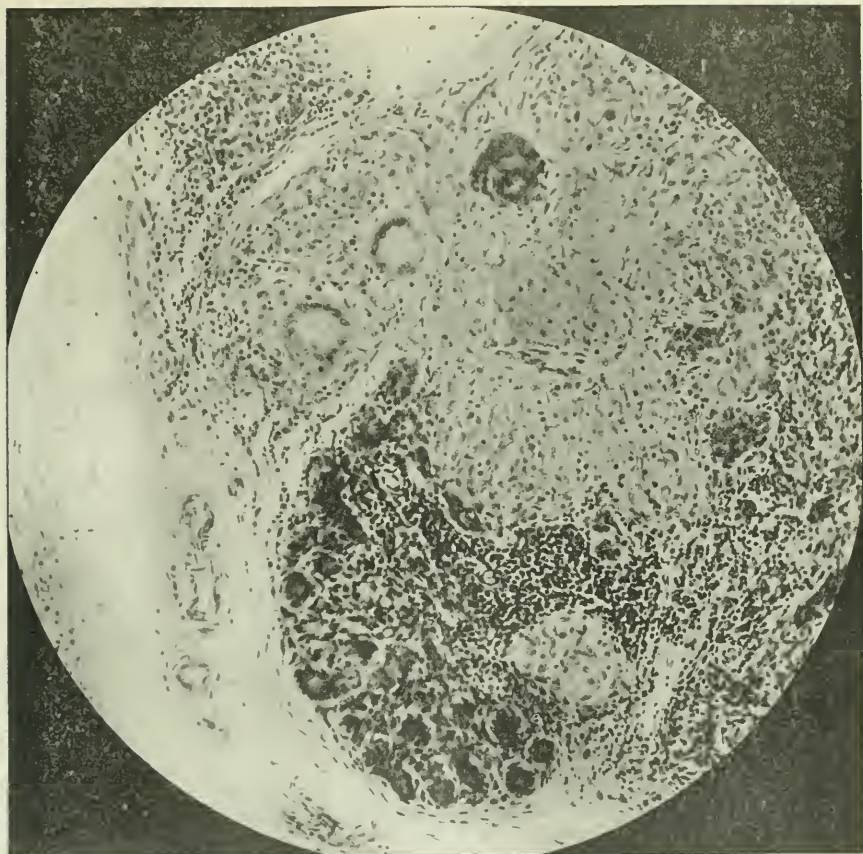


FIG. 3. Case 1. High Power. Dark area shows glandular tissue with lymphatic infiltration; two giant cells to right of center.

adenofibromata. Simple pyogenic infection is more rapid and with a more definite history of a lactating breast or trauma.

Sarcomata are more rapidly growing than the nodular type. Actinomycosis, gumma of the breast, celiomycocyst, sporotrichosis, are remote possibilities and can practically be ruled out by a careful history.

The general appearance of the confluent type is more readily recognized. The breast appears very large and seems to be completely involved, although not symmetrical. The growth is more rapid and there is more tenderness. In these cases too there is practically always a history of pre-existing tuberculosis in the lungs, pleura or neighboring structure of the chest wall; this being a very important aid in diagnosis.

The treatment in the discrete or nodular type is to remove the nodules if limited to one focus.

If more than one, it is safer to remove the breast. In the confluent type an amputation of the breast and dissection of the axilla is the best treatment.

Of course if in any case there is an incurable primary condition, then operative measures of any sort are not indicated.

There is no record of treatment by the x-ray, but with the excellent results being obtained by the roentgenologist there is every reason to believe that all the stages of tuberculosis of the breast can be helped.

1. No. 3069 X. Female. Married. Age 39. Entered the Goddard Hospital office clinic, complaining of a lump in the right breast about 5 months. No increase in size, not tender. Youngest child 2 years of age, never any real trouble with breasts while nursing.

Physical examination: A rather thin, undernourished woman. No glandular enlargement, except local. Heart normal. Nothing abnormal noticed in lungs. Locally there is a hard, smooth-feeling lump, about size of walnut, under the nipple of right breast. The nipple is retracted, but there is no discharge. This lump is not freely movable, and no glands can be felt in the axilla. A diagnosis of cancer of the breast was made, and operation was advised. At operation (by Dr. P. H. Leavitt) the breast was removed and the lump sectioned. It appeared very suspicious so the axilla was explored and several small glands were removed at this dissection. The wound healed by first intention and the patient made an excellent recovery.

Dr. F. B. Mallory reported tuberculosis of the breast.

Six months later—patient writes that she is feeling fine. Able to work without getting unusually tired. Appetite good. Request for x-ray (free) refused on the ground of being too busy.

2. No. 3233 and No. 3381. Female. Married. Age 24. Entered the Goddard Hospital office clinic, complaining of a bunch in the right breast, 2 years' duration. Has a child 3 years old, but remembers no trouble with her breast while nursing.

Physical examination: A healthy-appearing woman. No glandular enlargement other than local. Heart normal. Lungs, nothing abnormal found. Local, a good-sized tumor freely movable, 2 x 3 inches in diameter, nodular, axilla negative. Other breast negative.

Operation (by Dr. S. W. Goddard) showed an abscess cavity in the mid breast containing 1½ ounces of yellow non-odorous pus. The cavity was well defined, and the tumor disappeared. Culture showed a weak growth of staphylococci. The wound never quite healed but the patient did not appear again until 3 months later, at which time the breast presented a tumor similar to the first and numerous small discharging sinuses very typical of tuberculosis.

Operation (by Dr. S. W. Goddard) this time showed a tuberculosis of the breast. The latter was completely removed. There were no palpable glands in the axilla and a dissection of the latter was not done.

The x-ray of her chest by Dr. F. G. Wheatley was as follows: "There is a slight amount of peribronchial infiltration at the right apex, consistent with tuberculosis. The area involved is limited. The shadows are rather dense, indicating, probably, a long-standing lesion which may be quiescent."

The pathological report by Dr. F. B. Mallory was tuberculosis of the breast. The patient made an excellent postoperative recovery, the wound healing by first intention, and has had no trouble there since.

SUMMARY.

1. One of the rarest forms of tuberculosis.
2. Source of infection variable.
3. Diagnosis often difficult between carcinoma and tuberculosis.
4. Operation gives excellent results—type of operation depending on type of infection.

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DISCUSSION OF DR. LEAVITT'S PAPER.

DR. F. B. MALLORY, Boston: The following are some statistics from the laboratory of the Boston City Hospital, which may be interesting. During the last 25 years we have had 2,297 breasts for examination. The analysis shows 986 cases of carcinoma, included in which are 26 of the colloid type, and 11 of the epidermoid type. Ordinary adenomas numbered 355, chronic mastitis 674, abscesses 27, tuberculosis, including the two cases which Dr. Leavitt mentioned, 14; all other lesions 238, among which there were two cases of echinococcus cyst and one of actinomycosis. The percentage of the cases which were tubercular was 0.6. Our record is just a little lower than Dr. Leavitt's. Both of Dr. Leavitt's cases are fairly chronic lesions with a good deal of fibrous tissue production. From one of them no tissue was available for bacteriologic examination. In the other one, although I stained sections very carefully I was unable to demonstrate any tubercle bacilli although the lesion was perfectly typical, and there was no question about the diagnosis.

Tuberculosis is sometimes associated with tumors of the breast, and carcinoma is occasionally complicated with the lesion just as in other parts of the body. Recently we had a case of adenoma in a breast which had lactated within six months. At the edge of the adenoma were several miliary and small conglomerate tubercles, some of which were invading the tumor.

The three main ways in which the breast becomes infected are, as Dr. Leavitt has mentioned, first, by direct extensions from lesions in the lung. In actinomycosis of the lungs the disease is well known as prone to invade the surrounding bones such as the vertebrae and the ribs, and to extend into the soft tissue beneath the skin. This is very rare with tuberculosis. The second way is by the lymphatics from the axillary lymph nodes. The third method is through blood infection. This seems to be the most common way, and this case I referred to as involving an adenoma would seem to be of that type, as there was no other sign of tuberculosis in the breast.

DR. R. B. GREENOUGH, Boston: The figures I have been able to gather confirm those given by Dr. Leavitt and Dr. Mallory, in regard to the frequency of this disease. In the last fifty years there have been twenty-five cases in the surgical service of the Massachusetts General Hospital, and in the last few years we have had about one a year. Not all of these, however, can be regarded as tuberculosis of the mammary gland, but must be considered as cases of tuberculosis in the region of the breast, as in cases of tuberculous osteomyelitis of the rib. Many of the cases I have seen have shown involvement of the axillary lymph nodes prior to the recognition of the disease in the breast, and I have therefore believed that infection through the lymphatics was more frequent than has been suggested by Dr. Mallory.

I have seen one case in which direct infection of

the breast by use of a handkerchief to wipe the nipple in a patient with pulmonary tuberculosis, appeared to be the starting-point of a tuberculous infection of that region. As a rule tuberculosis of the breast presents definitely a picture of an inflammatory lesion with discharging sinuses. An early case of the nodular type, however, may easily be mistaken for carcinoma, and the co-existence of carcinoma of the breast and tuberculosis in other regions occurs often enough to make the diagnosis very difficult. Other inflammatory diseases of the breast, especially the so-called "Mastitis Obliterans," or suppurative inflammation of the ducts, following a low-grade infection after lactation, may produce a condition which is clinically, and even under the microscope, readily confused with tuberculosis.

DR. LEAVITT: In regard to the feeling that the infection comes from the axilla, *via* lymphatics, don't you think it is possible that the patients would notice a lump in the axilla before they would notice one in the breast? Might it not have been in the breast for quite a long time before arm movements would be such that it would be noticed? This has been advanced by several as more in favor of a blood-stream infection.

ETIOLOGY OF STERILITY IN THE FEMALE, FROM AN ANALYSIS OF 500 CASE RECORDS.

By DONALD MACOMBER, M.D., BOSTON.

WE believe that an inquiry into the etiology of sterile matings is necessary to correct certain misapprehensions which seem to be very generally current. A survey of the standard text books on gynecology shows that the whole subject is still chaotic. In the first place, I think few physicians realize that about one out of every ten marriages fails to produce living, healthy offspring, and hence must be classed as sterile. Again, few realize the number of essentially male sterilities. Our own experience has convinced us that fully 50% of all sterile matings are the result of trouble on the male side. These facts are surprising, but no more so than those which come to light on a critical survey of a large number of cases where the trouble is on the other side. The text books, besides largely neglecting the subject of male sterility, tend to classify all female sterilities from the point of view of disease alone. It is true that most books recognize the fact that faulty development may play a part, and that general condition is a factor, but these considerations are minimized and the stress is laid upon the diseased conditions supposed to be causative. Furthermore, no one, as far as we are aware, has tabulated the frequency of the various conditions as they appear in a large series of cases.

The records from which these figures have been taken comprise a series of somewhat more than five hundred cases. Many of the records are incomplete and many are of cases of male sterility. After subtracting those records unavailable for our purpose there are left three hundred and thirty-seven cases. While this series is of course not large enough to warrant any rigid deduction it is, I think, sufficient to outline in a broad way the distribution of causes of sterility as seen in the human female. Many of these cases have more than one condition pres-

ent which might be considered as having a bearing. In such cases an attempt has been made, for purposes of classification, to pick out that particular cause which seemed of the most importance; but with even the greatest attention to simplification, a list of such causes included more than fourteen items.

Before proceeding to a detailed analysis of the various causes of sterility a few words are necessary about what we may call the "mechanism of sterility." Normally, the semen after ejaculation remains in the vagina as a definite pool into which the cervix projects. There is probably also a certain amount of suction as, however soon after coitus patients are examined, spermatozoa are found in the cervical canal. During coitus there is an outpouring of the cervical secretion which helps to neutralize the acidity of the vagina, and offers an easy path for the spermatozoa in their progress into the fundus. There is probably also an increase in the secretion in the uterine cavity which serves the same purpose. Normally, many spermatozoa reach this cavity and it is probable that a good many eventually succeed in passing into the tubes where the ovum is met. There is, I believe, one case on record where living spermatozoa were found in the tubes some two weeks after coitus. We have found spermatozoa living in the cervical and uterine secretions six days after coitus with their vitality apparently unimpaired.

Now with this brief resumé in mind let us see at what point our so-called "mechanism of sterility" becomes operative. In the first place, an excessive and over-acid vaginal secretion may, in the absence of suction by the cervix, rapidly kill all spermatozoa coming into contact with it; but while this may often be of great importance as a secondary factor, we believe that the factor of primary importance is the condition of the cervical secretion. Here we are confronted with two factors either one of which may be of the greatest importance. The first is a mechanical alteration of the secretion which we have spoken of as inspissation. Instead of having the consistency of white of egg the secretion becomes thick, tenacious, and clouded with leucocytes. Such a secretion impedes the progress of the spermatozoa and eventually all become entangled in theropy mucus. It is caused by anything that interferes with free drainage from the external os. By far the most frequent of these conditions is the underdeveloped, anteverted cervix, with small or even pinhole opening. The second factor is infection. A typical infected cervical secretion is made up of mucus-pus and is usually associated with a certain amount of erosion of the cervix. In such a secretion the spermatozoa are not only entangled, but are actually killed by its poisonous nature. Following along the course which must be traversed by the entering spermatozoa we come next to the uterine cavity. Here it is not unusual to find secretions particularly altered

except as they may drain down from infected tubes, in which case they will have a lethal action similar to infected secretions in the cervix. There may be, however, alterations in the uterine mucosa due to subinvolution or other causes unknown, leading to hypertrophy and eventually interfering with the normal nidation of the developing embryo. In the tubes there may be various inflammatory changes varying from a thickening of the mucosa to absolute closure; or there may be inflammatory changes arising outside the pelvic organs themselves which by means of a pelvic peritonitis seal over the fimbriated opening from outside. Such a condition most commonly follows an acute appendicitis.

Hitherto we have dealt with causes and conditions interfering with, or preventing, the normal progress of the spermatozoa. It must be borne in mind, however, that the production of ova is equally important to the development of an embryo. There are two common conditions which interfere with the normal functioning of the ovary. The first is seen in its end-results as the so-called retention cyst ovary. Such an ovary, instead of containing one large Graafian follicle with its maturing ovum, and only a few much smaller follicles not yet at the stage of rapid enlargement, contains numerous small, thin-walled cysts with no demonstrable remains of ova. There is usually a thickening of the tunica albuginea. Whatever the cause of this condition it is certain that in its end-result it represents a non-functioning ovary.

The second condition interfering with normal functioning is the undue persistence of a corpus luteum. Normally, unless pregnancy has occurred, the corpus luteum should be retrograding by the time of the succeeding ovulation, and it is probable that it is the function of the corpus luteum to control the growth and development of the Graafian follicle. It is easy to see, if this theory is correct, that the persistence of a corpus luteum might prevent ovulation. It is to be remembered that ovulation and menstruation are two separate and distinct functions and that either may occur without the other, hence the regular occurrence of normal menstruation is no proof that ovulation is taking place. There are often no symptoms to call attention to either of these conditions in the ovary, and it is only on careful examination under an anaesthetic that the enlargement of such ovaries becomes apparent.

Having now outlined our view of the "mechanism of sterility" a word should be added on congestion. The pelvic organs of the female normally become congested with a consequent outpouring of their secretions at the time just preceding the catamenia and during coitus, but anything which tends to make congestion chronic may have a very deleterious effect. In chronically congested organs the blood-vessels are engorged; there is an excessive cervical se-

cretion; the uterus is large and heavy, and the ovaries are distinctly enlarged and tender to the touch. The persistence of this condition may interfere with the cervical secretion because of the liability to infection; it may interfere with nidation, or it may interfere with ovulation. Congestion may be caused by excessive coitus, or equally by sexual deprivation, or by anything, such as retroversion, fibroids or adhesions, which interferes with the normal venous circulation.

To summarize this conception of the "mechanism of sterility" we may say that we have certain organs taking part in a complex physiological process and that when anything interferes with this process the whole mechanism may be thrown out of balance. It is the classification of the various disorders which may affect this process that we are attempting in this paper.

Table 1.

PATHOLOGIC CLASSIFICATION OF FEMALE STERILITY

Closed tubes	19%
Tubercular tubes	4%
Endo-cervicitis	5%
Endometritis	2%
Retroversion	11%
Fibroids and miscellaneous	8%
Simple congestion	4%
Auteflexion	19%
Double uterus, etc.	1%
Infantile uterus	4%
Anteflexion and ovaries	8%
Retroversion and ovaries	3%
Ovaries alone	8%
Age, diet, menopause	4%
	100%

This table shows the frequency of the various pathologic lesions met as the principal diagnoses in 337 cases of female sterility.

Let us then examine the actual statistics of these three hundred and thirty-odd cases as given in Table 1. At first sight the most striking thing about this table is its complexity. It is difficult to see any simple relationship between its various items. A reference to the physiology enables us, however, to bring a little order out of this chaotic material; and further study, having in mind the useful conception previously elaborated of a "mechanism of sterility," enables us to still further simplify. This process of simplification is indicated in Table 2, and if carried on to its logical conclusion gives us Table 3.

It does not seem profitable to consider the separate items given in Table 1, in any great detail, and I shall not attempt to do so. There are, however, a number of very practical lessons which may be derived from this study, and these it seems worth while to indicate very briefly.

The striking thing about the inflammatory group is that there are only two regions in the genital tract of the female where inflammations

Table 2.

COMBINED CLASSIFICATION

Inflammatory group (closed tubes, tubercular tubes, endocervicitis, endometritis).....	50%
Congestive group (displacements, e.g. retroversion; new growths, e.g. fibroids; lacerated cervix, etc.; and simple congestion)....	23%
Developmental group—poor drainage (anteflexion, double uterus, infantile uterus).....	24%
Ovarian group (simple ovarian, and ovarian associated with anteflexion or retroversion; age, diet, premature menopause)....	23%
	100%

This table shows the transition between the pathologic and the functional classifications of the causes of female sterility.

Table 3.

FUNCTIONAL CLASSIFICATION OF FEMALE STERILITY

Inflammatory	30%
Congestive	23%
Developmental	24%
Ovarian	23%
	100%

This table shows the various causes of sterility regrouped on a functional basis and reduced to the lowest possible terms.

are apt to cause sterility. These are the cervix and the tubes. The text books attribute most of these inflammations to gonorrhoea, and in the class of cases seen in the hospital clinics this is probably true. Curtis* of Chicago has reported a series of 300 cases of salpingitis from his hospital clinic. Gonorrhoea appeared as a cause in 70% of these cases, pyogenic organisms in 15%, and tuberculosis in 5%. Many of his cases were complicated by the presence of the colon bacillus. In the sterility clinic at the Massachusetts General Hospital a similar high percentage of gonorrhoeal cases has been found. In our group of private patients gonorrhoea plays a very small part, and most cases seem to be due to infection with some other organism. The explanation of this difference between hospital and private patients seems to lie in the undoubted fact that patients of the latter class are less subject to infection from neglected gonorrhoea in the male.

Pyogenic organisms are not normally present in the vaginal flora, at least in an active state, but they must often be introduced in coitus. Anything tending to lower the resistance might be enough to allow them to multiply. The wonder really is that such chance infections of the tubes are not more frequent than they are. Appendicitis is undoubtedly responsible for many cases of pelvic peritonitis, often involving the tubes. Old, unrecognized tuberculosis of the tubes was found in 12 of our cases; in other words, 1 out of every 6 cases of closed tubes was tubercular. This may be exceptional, but it is certain that tubercular salpingitis is a much more frequent cause of sterility than has been previously supposed.

The congestion group is, as its name implies, a collection of more or less unrelated lesions as far as the actual pathology is concerned, but which all have this in common,—that they produce sterility if accompanied by congestion, and not otherwise. Retroversion in itself, unless adherent, is harmless and it is only when the symptoms of congestion, namely, backache, bearing down sensations, and leucorrhoea, are present that it plays a part in the causation of sterility. Similarly, fibroids, however dangerous they may be to the pregnancy, do not as a rule interfere with conception unless of large size, or so situated as to materially interfere with the uterine circulation. The third item under the congestion group I have designated as simple congestion. By this term I mean the congestion which arises from long-continued sexual excess, deprivation or irregularities of habit. While this condition appears alone in only 4% of our cases it must be understood that it was a factor in a very large number of cases classified under other headings. It must also be recognized that when the organs are in a chronic state of congestion they are much more susceptible to infections both of the cervix and of the tubes; furthermore, we have come to believe very strongly that chronic congestion has an effect on the ovaries which may ultimately inhibit ovulation.

The developmental group consists chiefly of cases where there is a failure either in part or in whole of that development which normally takes place at the time of puberty. This failure of development is usually classed as infantilism, hypoplasia, or infantile uterus where it involves the whole organ; but where the cervix is chiefly involved it has been customary to describe the resulting anteflexion as if it were a malposition, failing to recognize that it is in reality a condition intermediate between the infantile uterus, where cervix and body both remain underdeveloped, and the normal uterus where both have attained their full size and position. Before puberty the anterior vaginal wall is short and the small cervix points in the axis of the vagina; where development occurs only in the body of the uterus this short vaginal wall, with its underdeveloped cervix, persists, and there results the so-called anteflexion of the uterus or cervix. It is probable that the dysmenorrhoea and sterility which are almost certain to follow in extreme types of this condition are not so much the result of the mechanical flexion of the canal as of the failure to develop normal muscular and glandular tissues. There is, however, a mechanical effect from the poor drainage of secretions through the pinhole so characteristic of these cases. The method by which this may produce sterility has already been elaborated.

The last group is, like the second, made up of somewhat heterogeneous items, but which all have this in common,—that the ovaries are involved. As was explained under the "mechanism

*Amer. Gyn. Trans., 1921, Vol. xlii, p. 243.

of sterility," the two common lesions of the ovary are the presence of numerous small retention cysts or the persistence of corpora lutea. There are a few cases of true cysts, but these are decidedly rare among the patients we are here considering. Taken together these lesions make up nearly 20% of all cases. Finally, we have included in this group a small number of cases showing still another type of ovary. This ovary is small and firm and on section contains more cicatricial tissue and less true ovarian tissue than normal. Such an ovary is occasionally due to lack of development, but more often represents early senile changes.

During the foregoing discussion an attempt has been made to reduce everything to its simplest terms. While such a procedure makes for ease in dealing with this subject, and helps to bring out general principles which apply throughout, there is always present the danger of overdoing it. No case is as simple as it might appear to be if placed under the simple classification shown in Table 3. In every case the secretions are of the greatest importance, and equally important is the normal functioning of the ovaries. Congestion or infection may have to be reckoned with.

In conclusion, let me reiterate the following points—in the first place, a given sterile mating may be either male or female in origin and the chances are about fifty per cent. either way. Second, where the case is one of female sterility the chances are about even that the cause will be pathological on the one hand, or developmental or functional on the other. About one-quarter of our cases had closed tubes, or some other inflammatory lesion. In one-quarter the cause of sterility was congestion from one source or another. Another quarter was essentially developmental and in the last quarter the salient feature was failure of ovulation. Finally, let me emphasize again that in dealing with sterility we are concerned primarily with disturbances in function and that mere treatment of pathologic lesions, however important that may be, will seldom by itself be successful in relieving the sterility.

DISCUSSION OF DR. MACOMBER'S PAPER.

DR. EDWARD REYNOLDS, Boston: I think the method that Dr. Macomber has taken in classifying these cases is the only one that is available for clear presentation, but it is very important to emphasize what he said, and—which needs ever more emphasis—that in practice the cases do not classify so simply. It is the rarest thing in the world to see any case which belongs in only one of these classifications. There are almost always complexities and more than one condition present. It is also very important in every case to emphasize the degree of fertility on both sides, since slight degrees of fertility on one side, multiplied as they are by slight degrees on the other side, often amount to long continued, if not permanent, sterility without treatment, although this condition is very amenable to treatment. In general the main characteristic of sterility is the complexity of the subject and the fact that the balance which determines sterility is an extremely fine, delicate functional balance requiring

much more careful analysis than the ordinary examinations which are given to the grosser lesions which determine health or disease.

A very important point is the mechanism of fertility or sterility, the disturbances of fertility to which Dr. Macomber calls attention. There are two characteristic and frequent errors which we see in many of the cases which are referred to us, most of which have been through the mill more or less already. First, we see many sterile women who have been operated on, or subjected to long treatment, for some anatomically gross lesion, such as one looks for in a gynecologist's office, but in which the treatment, operative or not, has been directed only to the evident lesion without investigating in what way that lesion has disturbed the mechanism of fertility and without treating the disturbances of fertility which are present; for that reason the sterility has not been relieved and the patient therefore turns up in our office. Many such women require a second operation for conditions which could perfectly well have been relieved during the course of the first if it had been preceded by an exact diagnosis. For instance, a woman goes to a first-rate man who is not interested in sterility. He finds a retroversion and says, "We will hang it up!"—he does a first-class suspension operation and gets a first-rate and permanent anatomical result. He very likely relieves a backache, but he is not in the habit of investigating the minor alterations of secretions which kill the spermatozoa and which are usually dependent on bad cervical drainage, or of paying attention to the minor disturbances of the ovaries which result in an absence of successful ovulation, and does nothing about such conditions during his operation. His operation does not relieve the sterility. We find one or both of these conditions present and perhaps must repeat the operation in order to produce fertility. This is only one of many such conditions.

The second ordinary failure is in the case of a couple who have been told that they are perfectly well and that there is nothing the matter with them, but who have nevertheless continued sterile, when a disturbance in the mechanism of fertility is perfectly evident on full examination and is often promptly curable. In the long run one seldom gains credit by assuring a sterile couple that they are not sterile.

To use an illustration: there is not much sense in walking up to a wood lot and firing a rifle into it in the hope of getting a squirrel. You won't get the squirrel and you may do damage. If you want to make a success you must first see your squirrel and aim at him. As the result of long experience this seems to me the most essential thing to say in any discussion on sterility.

DR. MACOMBER, (closing): Dr. Reynolds has not left very much more for me to say on the question of female sterility. I do want to emphasize, as he has also, that every case has a functional element even if there is gross pathology at the bottom of it. If you correct the pathology only, you don't necessarily get a successful result unless you see that the organs are functioning properly. The cervical secretion and the ovaries are the two important points on this question of functioning. You can get a very good idea of how the cervix is functioning by examining these patients after coitus and seeing what happens to the spermatozoa. The question of how the ovaries are functioning is more difficult to analyze. Ovulation and menstruation are not necessarily connected, although they often are. A certain hint of ovarian functioning can be obtained from menstrual history, and the examination of a patient under an anæsthetic will tell you whether there is an enlargement of either ovary; but when you come right down to it there is only one way of telling what is wrong with ovaries that are enlarged, and that is by looking at them. If you have an enlargement of the ovary with history of sterility, with everything else normal, you can by excision come down to the ovaries and recommend

operation on those and then, at the actual time of operation, correct what is found.

That is the most unsatisfactory part of the examination for sterility, and often has to be left in doubt.

It is possible that the use of some of the glandular extracts may help out in the future, but so far it is only fair to say that the field is so uncertain and is so beset with various pitfalls that it is unwise to make any assumption in that regard.

FRACTURE OF THE LOWER END OF THE RADIUS ASSOCIATED WITH FRACTURE OR DISLOCATION OF THE LOWER END OF THE ULNA.

BY JOHN HOMANS, M.D., BOSTON,

AND

JUDSON ARTHUR SMITH, M.D.,

[From the Surgical Service of the Peter Bent Brigham Hospital, Boston.]

Read by Title.

THE fracture or fracture complex to which we wish to call attention may be thought of as a fracture of both bones of the forearm at their lower ends from one to two inches above their articular surfaces. But since the difficulty in treatment is due to the behavior of the radius, and since much the same difficulty with the radial fracture may be encountered whether the ulna is completely broken, bent, suffers an epiphyseal separation or is dislocated at its lower end, it would seem more appropriate to describe the condition as one of radial fracture with a complicating injury to the ulna.

Six patients treated upon the surgical service of the Peter Bent Brigham Hospital form the basis of these notes. In age they range from seven to thirty-one, all but one being under seventeen. The injuries with one exception cannot be described other than as falls upon the hand, but the falls were usually of some violence. The youngest, and the only girl in the series, described a fall upon the flexed hand.

One patient, the oldest, had been treated for four months before coming to the hospital, but the bones had not united solidly though fibrous union in poor position had occurred. Another had first suffered a greenstick fracture of both bones, but a second fall three weeks later had brought about a more complete fracture. Three attempts at reduction had failed before he entered the hospital. A third had been unsuccessfully reduced and had made no progress under a week of overhead traction upon the hand in bed. A fourth was subjected to traction in a similar way without effect. In a fifth, two attempts at reduction under gas were made before the patient was referred for operation. And only in one (complete fracture of both bones) was reposition without an open operation possible.

CASE 1. J. C., No. 7585, male, age 31. Four months before admission he fell upon his right hand (manner of fall not described). The frac-



FIG. 1.—Case 1. Fracture of both bones. Note backward angulation of radius and backward dislocation of the lower end of ulna.



FIG. 2. Case 1. Anteroposterior view. Note the low level of the ulnar styloid as compared with the radius, indicating that interarticular fibrocartilage has been severed. Note also the presence of callus between the ulnar fragments and absence of callus about the radial fracture.

ture was splinted by his physician for five weeks. At the end of four months there was fibrous union in poor position.

In Fig. 1, note especially the bending of the radius backward at the point of fracture and the posterior dislocation of the head of the ulna.

In Fig. 2, note the low level of the ulnar styloid as compared to the radial (indicating that the interarticular fibrocartilage and the other radio-ulnar attachments have been sev-

ered) and the drawing of the lower fragment of ulna toward the radius (pull of pronator quadratus). At operation, the ends of the fragments of both bones were refreshed, placed in apposition as well as possible and a plaster cast applied to hold them in the corrected position.



FIG. 3. Case 1. Postoperative. Anteroposterior view. Note that the articular surfaces of the radius and ulna are now in correct relation. The angulation of the lower ulnar fragments toward the radius has not, however, been corrected.

Fig. 3 represents the ensuing condition. In this plate, note the corrected relation of the radial and ulnar styloids and the failure to correct the outward pull on the lower ulnar fragment. A lateral plate taken at the same time shows that the posterior dislocation of the ulna has apparently been corrected.



FIG. 4. Case 5. Anteroposterior view. Fracture of radius with separation of the ulnar epiphysis.

Subsequent to operation a recurrence of the radial deformity and of the ulnar dislocation took place. A plate taken six weeks after operative reduction when union was still fibrous resembles exactly Fig. 1. From this time until union became firm, elastic pressure was maintained to correct the angulation and a statement appears on the record three months later that the bones were in good alignment and solidly united. Since then the patient has not been seen, but relatives report that he is dissatisfied with the condition of his wrist.

This case illustrates the effect upon the radial fracture of both ulnar fracture and dislocation, as well as a tendency of the fractured radius to non-union.



FIG. 5. Case 2. Lateral view. Note the anterior position of the lower radial fragments and the posterior dislocation of the ulnar shaft. The head of the ulna can be seen faintly through the lower radial fragment in its normal forward position.



FIG. 6. Case 2. Postoperative. Note the replacement of the radial fragments. The position of the head of the ulna and of its shaft seems reasonably good.



FIG. 7. Case 2. Lateral view. Note the backward displacement of the ulnar shaft. The displaced head lies considerably in front and can barely be seen through the lower radial fragments.



FIG. 8. Case 2. End-result. Dislocation of the ulnar shaft has been corrected, the shaft and head are in normal relation, and the radius has healed in good alignment.

CASE 2. D. H., No. 10021, male, age 16. Five weeks before admission he fell upon his left hand (manner of fall not described) sustaining what was at first thought to be and was treated as a Colles' fracture. Three weeks later he fell again, causing a re-fracture. Several attempts at reduction under an anesthetic then failed.

Fig. 4 illustrates the condition at this time. Note the over-riding of the radial fragments. The upper fragment is drawn toward the ulna. A separation of the ulnar epiphysis without an actual fracture of the shaft has taken place.

In Fig. 5, the lower radial fragment, contrary to the position of deformity in a Colles' fracture, is anterior. The ulna shaft is dislocated backward and is separated from the epiphysis, which can faintly be seen well in front.

At operation, the ends of the radial fragments were refreshed and so beveled that they locked together. In putting on the plaster cast the ulna could not be returned to its normal position and remained posterior.

Fig. 6 shows the operative correction of the radial deformity. In this anteroposterior view the ulnar epiphysis seems in fair relation to its shaft.

In Fig. 7, the posterior dislocation of the ulna is shown uncorrected. The epiphysis is, moreover, far in front.

The result, as shown in Fig. 8, two and a half years later, is functionally perfect. The ulna feels short and unusually movable. Inversion of the hand is very slightly increased, making up for an equal diminution in eversion.

This case illustrates the effect upon the radial fracture of separation of the ulnar epiphysis.



FIG. 9. Case 3. Lateral view. Before reduction. The direction of the deformity corresponds to that of Colles' fracture. The lower fragments of both ulna and radius are in natural relation to each other.

CASE 3. A. M., No. 14903, male, age 14. He fell upon his left hand (manner of fall not stated).

Fig. 9 shows the fracture before reduction.

Fig. 10 shows the result of reduction. Note that the ulnar fragments are apparently replaced in perfect alignment, but that the fragments of the radius, though hardly over-lapping, are not in apposition.

Fig. 11, taken the same day as Fig. 10, shows that both bones are in anteroposterior alignment and that the lower fragment of the ulna is in normal relation to the radius. A week of traction by suspension in bed failed to improve the position of the fragments. At operation the



FIG. 10. Case 3. Lateral view. After preliminary reduction. The ulnar fragments are in good alignment and the radial fragments are not.



FIG. 12. Case 3. Lateral view, postoperative. Note the corrected position of the radial fragments.



FIG. 11. Case 3. After preliminary reduction. Anteroposterior view. Taken same date as Fig. 10.

radial fragments were placed in apposition. Fig. 12 shows the condition after operative reduction. Healing was prompt and the result, as shown in Fig. 13, was anatomically and functionally perfect.

In contrast to the two previous cases, this one shows that the deformity of the radius does not tend to recur after reduction when the lower ulnar fragment is in normal relation to the radius (triangular ligament intact. No ulnar dislocation.).

CASE 4. H. J. DeS., No. 13352, male, age 12. The patient fell from a moving automobile (manner of injury to arm unknown), injuring the left arm.

An attempt at reduction under gas and ten days of strong suspension traction in bed failed to improve the relation of the fragments.



FIG. 13. Case 3. End-result. The bones have healed without deformity.

Fig. 14 shows the fracture before operation in lateral view. The lower fragments of both radius and ulna are anterior. There is considerable over-riding. Note that there *appears* to be no evidence of dislocation of the lower end of the ulna.

Fig. 15 confirms the findings of Fig. 14, but shows in addition that a chip has been detached from the articular surface of the radius.

At operation the radial fragments were replaced, but no attempt was made to bring the fragments of the ulna into perfect apposition. The arm and hand were placed in a plaster cast.

Fig. 16, lateral view, shows the operative correction of the radial deformity. The ulnar fragments appear barely in contact.



FIG. 14. Case 4. Lateral view. Before operation, but after prolonged traction. Note that the fracture shows the reverse of the Colles' deformity.



FIG. 16. Case 4. Postoperative. Radial fragments have been placed in position. The displacement of the ulnar fragments is uncorrected.



FIG. 15. Case 4. Anteroposterior view. To compare with Fig. 14.



FIG. 17. Case 4. Anteroposterior view. Taken same date as Fig. 16. Note the much higher level of the lower end of the ulna as compared with the radius, showing that the heads of the two bones are not in their normal relation.

Fig. 17 gives the clew to the real difficulty in this case which had not before been apparent. The lower articular surface of the ulna is not in normal relation to that of the radius but is much higher, showing that there is in fact a dislocation of the lower end of the ulna. The effects of this dislocation, doubtless a result of rupture of the interarticular fibrocartilage, subsequently appear.

Fig. 18, a plate taken over a month later, shows that bending of the radius at the point of fracture has recurred and now the *backward* dislocation of the lower end of the ulna is apparent.

The bones finally united after correction of the deformity and a year and a half later the result, as shown in Fig. 19, apparently is perfect.

This case illustrates not only delayed union of the radius, but, what is more important, the tendency of the radius to bend when the lower attachment of the ulna is insecure. The condition is similar to that shown in Cases 1 and 2 and should be contrasted with Case 3. For though Case 3 suffered a fracture apparently similar to Case 4, there was no dislocation of the ulna from the radius in the former and no tendency of the radius to bend after reduction. The two following cases further illustrate this point.

CASE 5. D. II., No. 8804, female, age 7. The patient fell upon the flexed left hand. Reduction of the fractured radius could not be effected under an anesthetic.



FIG. 18. Case 4. Lateral view one month later. Union of the ulna has occurred, but there is posterior displacement of the head. The backward deformity of the radius has recurred.



FIG. 19. Case 4. End-result, showing correction of the deformity as a result of treatment.

After the first attempt at reduction the position of the radial fragments was found to be poor. There was no over-riding, but the upper fragment remained anterior to the lower and the two were barely in contact. There was a subperiosteal fracture of the ulna without deformity. Open operation was required to restore the alignment of the radius.

The late result, three years later, is equally perfect in every way and again emphasizes the fact that there is no tendency to recurrence of the radial deformity when the lower end of the ulna is secure.

CASE 6. P. F., No. 8821, male, age 12. The patient fell from a trapeze upon the right arm

and hand, but the exact manner of injury to the arm is not known.

The fracture was reduced at once under gas—the only instance in this series in which this was accomplished.

Subsequent radiograms showed that the radial fragments were in good approximation and alignment. The ulnar fragments were barely, but probably definitely in contact.

The bones healed without delay and without any tendency to angulation, giving a perfect late result. It seems probable that here the fractured ends actually locked in contact and promptly united.

Examination of standard works on fractures fails to show that this injury has been given particular attention. Stimson states that in fracture of the radius, "at or below the middle of the bone the tendency of the biceps is to draw the lower end of the upper fragment forward and inward and that of the pronator quadratus and supinator longus is to draw the upper end of the lower fragment toward the ulna. . . . *Over-riding has been observed only when dislocation of the lower end of the ulna was associated with the fracture.*" He speaks of the use of prolonged traction to replace the radial fragments when the lower end of the ulna is dislocated, but says nothing of the tendency to displacement or angulation once the fracture is immobilized by splints or plaster.

Cotton alludes to greenstick fracture of both bones slightly higher than the Colles' line. He considers that it is a definite type in small children. It may look like a Colles' fracture, though the ulna head is not altered in relation to the styloid process of the radius. He advises against ever completely breaking such a greenstick fracture on account of the difficulty in treating the loose fracture of both bones.

There is some question whether the fracture described in these notes can be considered an entity. Its exact manner of production is not known, though several of the falls have been of considerable violence. The radius is so broken as to be left with the lower fragment anterior in nearly all cases. Therefore the mechanism must usually differ from that of the Colles'. The deformity is a little higher but many often appear much like that of the reversed Colles' (Smith's).

The initial difficulty in reduction is undoubtedly due to several factors. First, the loosening of the radio-ulnar articulation destroys the fulcrum upon which forced inversion of the hand prisms loose and draws down the lower radial fragment. Second, even when this articulation is intact, the lower fragment offers a much longer arm for leverage than is the case in a Colles' fragment. Third, the pull of the pronator quadratus, which draws together the lower two inches of the radius and ulna, offers a most effective resistance against any such leverage

as can be made. And finally, straight traction which might be expected to effect reduction can be applied only to the hand and not directly to the lower fragment of the radius.

It is also conceivable that interposed muscle (pronator quadratus or supinator longus) prevents reduction, but this has never been demonstrated in the operations of this series.

The ultimate and postoperative difficulty in holding the fractured radius is undoubtedly due to the instability of the lower fragment of the ulna; not the fracture of the ulna at the level of the break in the radius, but the tearing off of the ulna from the radius at the articular surface—a rupture, in fact, of the strong interarticular fibrocartilage, the chief ligament uniting these bones. For a consideration of the six fractures here recorded shows clearly that though open operation is nearly always necessary to replace the radial fragments, *it is only in instances where the lower attachment of the ulna and radius is severed that secondary displacement and deformity occur.*

We may summarize our conclusions upon the nature and treatment of this fracture under the following heads:

1. The mechanism by which fracture is produced cannot be accurately described, but is in general a fall upon the hand; possibly a blow upon the wrist.

2. It occurs in young people.

3. The radius is fractured one to two inches above the articular surface. The ulna may be broken at the same level, but whether or not it is broken, the lower end of the ulna may be dislocated (backward).

4. The reduction of the radial fragments is made difficult by any one of a number of factors, but is almost impossible by bloodless methods when the lower end of the ulna is dislocated.

5. Open operative reduction is indicated after failure of one attempt at closed reduction.

6. After reduction, the loss of the splinting effect of the ulna due to dislocation of its lower end causes the radius to angulate even in well applied restraint.

7. After reduction, if the radio-ulnar articulation is intact, there is little or no tendency to deformity, even though the ulna is fractured on a level with the radius.

8. Open operative reduction is simple, and no suturing, wiring or plating is necessary, but the position must in all cases be most carefully watched and maintained.

9. There is a tendency to delayed union of the radius.

THE HERITAGE AND THE RECKONING OF THE SURGEON.

By MICHAEL F. FALLOX, M.D., WORCESTER, MASS.

THE consideration of the heritage of the surgeon could, perhaps, be held nowhere more appropriately than in this historic city of Boston,

for the medical profession here has always championed the highest medical standards, and has achieved the highest professional attainments.

The names of many of the physicians and surgeons of this city are writ large in the history of medicine and surgery. Even in my day were such men as Reginald Fitz, whose research work gave to us among other things the right knowledge of appendicitis and pancreatitis; John Collins Warren, who added lustre to the fame of illustrious ancestors; David Cheever, unsurpassed as surgeon, writer, and teacher; Henry P. Bowditch, said to be, in his day, the leader of American physiologists; Thomas Dwight, renowned as an anatomist; Maurice Richardson, as lovable as he was brilliant; the fearless John Homans, the skillful Porter; the genial Fred Shattuck, whose correct diagnosis never failed to elicit the wonder and admiration of his fond students. When to these illustrious names are added those of Oliver Wendell Holmes, the Jacksons, and Bigelow—we, in this neighborhood, may well regard with pride the noble heritage that has been given to us; and then, too, to Boston is due the crowning achievement and the epoch-making discovery—the giving of ether anaesthesia; the priceless gift to suffering humanity through the instrumentality of William T. G. Morton and John Collins Warren, the elder.

The study of the lives of these men shows us that their purpose was not to get all they could out of life for themselves, but to try to make the lives of others happier.

In comparison with present-day surgery, both in the principles and in the practice of surgery, the surgery of former times was extremely limited. Sir Astley Cooper said, "While it is the province of the physician to attend to internal diseases, it is the duty of the surgeon to attend to those that are external."

Practical surgery, even up to the last quarter of the nineteenth century, was mostly given to the relief of fractures, amputations, stones in the bladder, strangulated hernias and some imperative affections, mostly external.

Hence, it is not surprising that, in former days, even the most renowned surgeons had but few operations to their credit. For example, in the "Life of John Collins Warren, M.D.," at the end of volume two is appended a list of the larger surgical operations performed by him between the years of 1821 and 1851. These were performed mostly in the Massachusetts General Hospital. There were, in all, two hundred forty-three of what he calls, "the larger surgical operations" during these years, and these included amputations, bone-operations, external tumors, lithotomies and a few hernias.²

Dr. Samuel D. Gross, as late as 1864, only three years previous to Lister's famous announcement on antiseptics, in his book on surgery disposes of diseases of the gall-bladder in less than two pages. He does not even mention gall stones as a disease.

Although their operations were few, we can imagine with what consternation the surgeon in former days anticipated an operation.

Dr. Gross said, "It has been asserted by an eminent authority, Professor Simpson, that a patient who is about to undergo a severe operation incurs as much danger as a soldier engaged in the most fierce and bloody battle. This is a strong declaration, but I believe it to be fully borne out by facts; nevertheless, it must be received with some degree of allowance."³

As evidence of the dangers a patient faced in an operation, consider a series of herniotomies recorded by Dr. Gross.¹³ In all, there were six hundred twenty-two cases of herniotomy operated.

Of these, there were three hundred twenty-six recoveries and two hundred ninety-six deaths, and the principal causes of death after herniotomy were shock, hemorrhage, peritonitis, erysipelas and pyemia.

Pathetic was the remark of Dr. Gross, even as late as 1864, when he says, "During an epidemic of erysipelas in Kentucky in 1845, 1846 and 1847, the slightest abrasion of the skin, the leech bite and the application of the blister were often followed by an obstinate, and sometimes even a fatal attack of the disease, and the consequence was that I was compelled, for many months, to decline the use of the knife nearly altogether."¹⁴ We can readily see why surgery was not popular in those days.

Dr. John Morgan, founder of the medical department of the University of Pennsylvania, after a long time spent in study abroad, wrote from London to Dr. Cullen in 1764, "I am now preparing for America to see whether, after fourteen years of devotion to medicine, I can get my living without turning apothecary, or practitioner of surgery."¹⁵

A professor of surgery might teach the principles of surgery, but he would not demean himself to operate.

The famous Von Haller (1708-1777), a professor of surgery, never performed an operation, and "Billroth commenting on this arrangement says that Albrecht Von Haller, in Berne, should, for many years, have lectured on surgery without ever having touched a single human creature with the knife, is for us in these days, hard to comprehend."¹⁶

Even John Hunter's brother William tried to dissuade him from becoming a surgeon.

And yet, without the indefatigable labors of such men as John Hunter and Samuel D. Gross and John Collins Warren surgery could not have reached the high plane of the present day.

The results of the labors of John Hunter, for example, in clinical research, in physiological and pathological experiments, form no small part of the foundation of present-day surgery. Step by step, even from very ancient times, improvements leading to discoveries have marked the progress of surgery.

The ligature was known even to Celsus, but it could not be properly applied until the discovery of the circulation of the blood by Harvey, and in the development of the ligature, we owe much to an American—Phillip Syng Physick, since it was he who first advised the use of animal ligature in tying arteries, and he made these ligatures from fine strands of buck-skin.⁵

Perhaps no factor responsible for the success of modern surgery was so spontaneous in its origin, and so quickly adopted, as was that of the anaesthetic ether.

Sir James Paget thus sums up the claims of the various applicants for the discovery of ether. "While Long waited and Wells turned back, and Jackson was thinking, and those to whom they had talked were neither acting nor thinking, Morton, the practical man, went to work and worked resolutely. He gave ether successfully in severe surgical operations; he loudly proclaimed his deeds, and he compelled mankind to hear him."¹⁷

The three things more than others that have made modern surgery possible are control of hemorrhage, of pain and of infection; and, for the knowledge of infection, that is the cause of most diseases, we are indebted to Pasteur, "the most perfect man who has ever entered the kingdom of science." . . . "Before him, Egyptian darkness; with his advent a light that brightens more and more as the years give us ever fuller knowledge." . . . "To no one man has it ever been given to accomplish work of such great importance for the well-being of humanity."¹⁸

Pasteur's investigations, begun with the fermentation of beer and wines, culminated in the discovery that each infectious disease is produced by development within the organism of a special microbe. Pasteur gave to us, for the first time in the history of the world, the knowledge of infection, and from this discovery more than from anything else, modern surgery has arisen.

At the time of Pasteur's announcement of his discovery of the causes of infection, Lister, who was in Glasgow, recognized the importance of the innovation that was to transform surgery.

It is difficult to realize that the humane Lister met with opposition for years in his attempt to introduce the principles of Pasteur into surgery, but, finally, the simple and sane measures of surgical cleanliness obtained, and in the decennium between 1880 and 1890, operations were done that were never before attempted. Above all, a worthy champion of the principles of Pasteur was found in Billroth, the master among master surgeons, and surgery received an impetus from Billroth in the last quarter of the nineteenth century that it had never known before. Pain, hemorrhage and infection were now under control by the surgeon, and Billroth, by his experiments upon animals, and his pathological and surgical research labors upon the human being, extended the field of surgery. Among his many notable achievements, he did the first

successful resection of the stomach, and he established many innovations in gastro-intestinal surgery that could never previously have been attempted.

What a debt we owe to the generations of unselfish men who labored often in spite of the greatest difficulties, and whose labors have finally culminated in the wonderful status of present-day surgery! And how these men did labor! No man ever worked harder than John Hunter (1728-1793). He arose about four o'clock in the morning and seldom went to bed before midnight. "Come early to me, tomorrow morning, young gentleman," he said to a medical student who had been introduced to him, "and I will put you in the way of things. Come early in the morning as soon as four if you can." The young man came at four o'clock in the morning and found Hunter dissecting a beetle.⁷

John Hunter's income in his last years amounted to over six thousand pounds annually—a large sum in those days, and yet he died a poor man. He turned his income back into professional activities. We, today, have profited immeasurably from the results of his tireless industry.

An indefatigable worker, also, was John Collins Warren (1778-1856), the elder. He was never robust, yet he was a tireless worker. He was an early riser, and frequently labored with his books, and with his writing, until two in the morning after a hard day's labor.

And Billroth (1829-1894) worked continually for months at a time from sixteen to eighteen hours a day.

Pasteur's favorite phrase was, "Let us work!" And in a letter to a member of his family he said, "When one is accustomed to work, it is impossible to do without it. Besides, everything in this world depends on that. Armed with science one can rise above all one's fellows."⁸

What should be the reckoning of the surgeon in return for the noble heritage given him through the unselfish labors of his predecessors? In the first place, he should develop to the upmost in his preparation and in his practice the old Hippocratic standards of learning, of integrity, of humanity, and of probity.

How may he best accomplish this in his preparation for surgery? Dr. John B. Roberts, in his Presidential Address at the meeting of the American Surgical Association, June 14, 1921, answered this question admirably, and he said, in part:

"A conviction has been brought to me, by these studies, that a maximum of success up to the limit of an individual's native capacity may be best obtained by certain educational equipments acquired prior to the entrance into the undergraduate medical school and after release from the now usual hospital internship.

A real surgeon should have knowledge of logic, psychology, ethics and, at least, a familiarity with the fundamental processes of rather

advanced mathematics and of chemistry and physics. Otherwise, how can he be expected to accurately use his reason to understand and interpret the mysteries of biochemistry, physiology and the physical processes of life?

Similarly, he needs, particularly in a surgical career, a working knowledge of general mechanics, and should have some training of his hands and fingers by which his cerebral centres will be stimulated to specific reactions.

In addition to an acquaintance with Latin, he should know some Greek. Those tongues lie at the basis of medical nomenclature."⁹

Is such a preparation for the study of surgery superfluous? Let Dr. Samuel D. Gross who has been called the Father of American Surgery, answer from his own experience. When he (Dr. Gross) had studied medicine for a while, he said:

"I, at length, gave up in despair. I found that my Latin was inadequate, and that I could not understand the technicalities of medicine without some knowledge of Greek. *This was the turning point in my life.* I had made a great discovery—the knowledge of my ignorance, and with it came a solemn determination to remedy it." He consulted his preceptor, Dr. Swift, who told him "to get an education first, and then study medicine."¹⁰

John Hunter refused to get an education first, but he regretted it in after life, and the absence of an education is evidenced in his writings by errors of style and literary composition which greatly disfigure and obscure his writings.

The preferment which may come to a surgeon in uniting education with his professional studies may be seen in a consideration of some of the most prominent surgeon-generals of the Revolutionary War, Drs. Shippen, Rush, Jones, McKnight, Cutter, Morgan had both academic and medical degrees. Dr. Burnett had only an academic degree, and Dr. Turner, one of the best of them all, had neither.¹¹

The acknowledged dean of American educators in this country, Dr. William Welch, said, "There is a very unsatisfactory demand for collegiate training in this country. It is unfortunate that such a situation should exist." And again, he says, "Right practice requires abundant knowledge, nowhere more so than in medical practice, and the all-sufficient justification of the position held by the various sciences in the preliminary and the professional education of the physician is that they furnish knowledge and discipline of mind needed in the preparation for his future work. The social position of the medical man and his influence in the community depend, to a considerable extent, upon his preliminary education and general culture.

For this reason, as well as for his intellectual pleasure in his profession, and as a sound foundation for his future studies, a student should enter the medical school with a liberal education

which should include training in the sciences fundamental to medicine."¹²

And Dr. Osler, who had unusual experience in the training of medical students, said, "No one can have watched the successive groups of young men pass through the special schools without profoundly regretting the hap-hazard, fragmentary character of their preliminary education."¹³

Already the influence of such men as Drs. Welch and Osler, on proper preliminary training, appears in the requirements for the Class A medical schools for, since 1918, such medical schools require that two preliminary years of college work be taken in approved colleges of arts and sciences, thus recognizing that the cultural atmosphere in such colleges is preferable to a strictly premedical scientific course.

The premedical course, in addition to the humanities and appropriate sciences, should also include a training in right ethics.

The value of proper ethical conduct to a physician is well summed up in an opinion of Chief Justice Rugg of the Supreme Court of Massachusetts, in the recent case of a physician found guilty of gross misconduct by the Board of Registration in Medicine:

"Soundness of moral fibre to insure the proper use of medical learning is as essential to the public health as medical learning itself. Mere intellectual power and scientific achievement, without uprightness of character, may be more harmful than ignorance."¹⁴

Fortunately, for the future of medicine and surgery, the study of the humanities is coming into its own in the preliminary curriculum. If the study of the humanities were neglected, we perhaps would look in vain in the future for such doctors as Oliver Wendell Holmes, William H. Welch and Osler.

Will the combined cultural and scientific preparation unduly prolong the time of entrance into professional life? The average age of graduates from Class A medical schools in this country is now twenty-seven years. Any further lengthening of the medical curriculum may present a serious sociological problem, and more especially in retarding the marriage age; and, again, in dulling the initiative by a late entrance into professional life. Some years ago, I heard Dr. Osler discuss this problem, and his proposed solution then is the present-day solution. We cannot shorten the premedical or medical course, but we could endeavor to shorten and change the course in the lower grade schools.

Dr. Osler said, "It does seem too bad that we cannot have a student in his eighteenth year sufficiently grounded in the humanities and in the sciences preliminary to medicine; but this is a problem upon which a Milton or a Locke could discuss with profit."¹⁵

It is wholly practical for a boy to begin his study of the classics and foreign languages, together with pre-scientific studies, at the age of ten, and if the parents were to direct the early

education of their son, it would be possible for a young man to have a proper preliminary cultural and scientific training, and also, his medical training, and graduate from medical college at the age of twenty-four.

I lay stress upon what I believe to be the proper basic preparation of a surgeon since, in so doing, I believe that in no other way can a surgeon better fulfill his duty to his patient and to his profession.

Another duty of the surgeon in upholding his heritage and to advance the interests of his profession is to unite with other surgeons to protect the sacred trust vested in him.

Sir Harold Styles said, "It may safely be asserted that, in no walk of life, in no other profession, is the life of a subject so much at the mercy of his fellow-man as when he places himself in the hands of a surgeon. It is right and proper, therefore, that the profession should see to it that such a sacred trust should be placed in the hands of men who have shown that they are morally as well as intellectually and technically capable of fulfilling the trust."¹⁶

The control of hemorrhage, and of pain and knowledge of the source of infection have given to some who may not be surgeons a facility in operating that, at times, may lead to disastrous results; hence, surgeons should endeavor to authoritatively limit operative surgery to those who have had adequate training.

The discoveries that have made modern surgery possible, and especially the knowledge of infection, have also given us vast problems for solution, and many scientific possibilities. Pasteur once said, "In the field of observation chance only favors the mind which is prepared." And in trying to solve these problems let us study the ways of Pasteur—his humility of mind, his concentration, his diligence, and let us not be self-satisfied with our labors as was Baron Boyer, who, over one hundred years ago declared that "surgery had then reached almost if not actually, the highest degree of perfection of which it was capable."

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DISCUSSION OF DR. FALLON'S PAPER.

DR. W. P. BOWERS, Clinton: The paper which has been presented is a most difficult one to discuss because it is so complete that it leaves room only to suggest some ways by which the practice of surgery may be carried on to meet the standards already established.

The first question involved is how to select and prepare students for surgery. Medicine as you know has been for a long time a free-for-all race. There have been comparatively few hurdles or obstacles erected to prevent anybody from practising medicine. The attempt which has been made by the State to regulate medicine is only of comparatively recent years, and only went a little way. We have with us this morning the last surviving member of the group of men who tried to get the State to establish certain standards regulating the practice of medicine, and it seems eminently proper that I should refer to the gentleman on my right here (Dr. Gay) who was a pioneer in that movement designed to protect the people from the incompetent and improper practice of medicine.

Now surgery has accomplished so much that the problem today is to develop men who are able to carry on that which has already been accomplished in the way of study and practice. And how shall we do that? You say, of course, first, it is the problem of the medical school, and so it is; but are the medical schools carrying out the possibilities of the education and development of the surgeon? Wouldn't it be logical to demand that the medical schools should first study the capacity of every aspirant for surgical recognition, to determine first whether a given person has those qualifications, mental and physical, which would warrant his taking up the study of surgery? You know in the war it was the custom to examine people for definite types of service. An aviator, for example, had to go through some thrilling tests before he could be given the right to exercise that particular function, and if he failed to meet these tests he was denied the privilege. It seems equally logical to say to a young man wishing to be a surgeon that he has not the educational qualifications, and hence must be denied the privilege of practising surgery if the facts warrant this decision.

It seems to me to be first the function of the medical school to decide, and after deciding then comes the question of training. Throughout the country there is today a very serious question as to the character and quality of the interne year. Of course every surgeon from now on must be a man who has had the privilege and experience of an internship, and the question is being discussed very seriously whether the original preparation of every practitioner should not be through a rotating internship, and later those who wish to develop the specialties should take a supplementary interne service which shall fit them particularly for the specialty which they have elected to follow.

That influence and power and function of medical schools can only be exercised, however, up to a certain degree, because beyond that you must have a certain power given to the State through its representatives to select the men who shall practise the higher departments of medicine as demonstrated in surgery and other specialties. There must come a time when this simple examination, which can be made only sufficiently severe to be called fair, shall be regarded only as a preliminary examination with a further examination for the right to practise specialties. Not only the medical schools, but the State itself must determine some further qualifications than are now required of those practising medicine in its higher branches. There are certain types of practice which do require prolonged study and extensive experience and training under those who are qualified to do that advanced teaching.

These problems, it seems to me, are the problems

which face the surgeons today. The progress which has been made has placed surgery on a high plane, and that must be maintained through men who are better educated than the average practitioner.

DR. JOHN T. BOTTOMLEY, Boston: It is refreshing, perhaps I had better say it is refreshingly surprising, to find on the program of a surgical section-meeting such a title as the paper of Dr. Fallon bears. Surely it is stimulating to listen to the reading of that paper by the man who had the wit to offer it for the education and elevation of the section-members. When I was invited to take part in the discussion, I confess that I accepted with considerable hesitation; for, to tell the truth, it is not an easy matter to make comment on such a paper, nor is it a simple thing to know just what line to follow. However, as I mullied over the ideas set forth in the reader's abstract, several thoughts came to my mind.

First of all, there is most certainly a need for such papers, at least occasionally, to rouse in us the realization that we surgeons have a heritage, that it is one in which we may take a just pride and that it contains in itself much which should comfort and stimulate us in our day's task. A just appreciation of the natural moral law holds us responsible for the use we make of what we possess in the way of either body or mind, in the realm of the physical or in that of the spiritual (I use the word in its broad sense). So in a way we are bound to hold up before the mirror of our minds, for our own contemplation and emulation, the heroic figures and deeds of those pioneers in our profession who yesterday cut the paths and blazed the way that we might the more easily follow the road today. So, too, the reckoning of the surgeon really embraces his heritage. To us has been handed the torch; it is for us to hold it aloft, to brighten its flame, to broaden the light it sheds.

And then the reckoning of the surgeon! The General Secretary of the Y. M. C. A. of Chicago, with whom I have had many pleasant hours, once told me that, in talking to young men on the problems of life and work, he often expanded his theme from these three headings: (1) define your possibilities, (2) defend your possibilities, (3) develop your possibilities. His outline may well be applied to us and to our work. We should define clearly the field of surgery in which we conclude we are best fitted to labor; we should prepare ourselves adequately for work in that field; we should let nothing of lesser importance entice us away from our endeavors and we should develop our powers to the utmost limit permitted by the conditions under which we carry on. Time, thought, effort and tenacity are all required to get even a good start on the road.

May I, in closing, express a thought on what I conceive to be our duty in the matter of safeguarding the practice of surgery.

First, we must sharpen the professional conscience. We must be honest to ourselves and to the public. We must not attempt the things we are not fitted to do. We must not fail to prepare ourselves thoroughly before we begin to do. We must not cease in our efforts to uncover our weak spots and then to strengthen them by travel, by observation, by study and by work. The acquisition of a medical degree means the beginning and not the end of toil.

Second, once we have trained ourselves by the wear of our hands and the sweat of our brows for the chosen work, it is but mere justice that we should protect ourselves and our work against the inroads of those with inadequate training and just as inadequate consciences. In protecting ourselves we are only protecting the public who are entrusted to the care of the profession at large. The best of us at times fall into error and make mistakes; the worst of us come close to committing crimes.

I am satisfied that no organization alone, no appeal to the higher things of life, no court can better to a satisfactory degree the conditions that we all know exist today. We must educate the lay public

to demand that he who pretends to do surgery must be fitted to do surgery, and that he must be certified by and bear the approving mark of some organization of his peers rightfully constituted to so certify and so approve. I believe that this information must be got to the public through the usual channels by which information reaches the public—through the platform and through the press. The founding of the American College of Surgeons, no matter how dark you may personally regard the cloud under which it was born, no matter how deep the distrust you may personally feel for its master-men, methods and machinery, no matter how faulty you may think are some of its judgments, marks a long step in the right direction. The men who conceived and launched it were at least men of vision who did, while we dreamed. Not in this generation will its greatest good be had, but in the next and succeeding generations, when we and its founders alike shall have passed on. It is the only general certifying authority that exists for us, and I regard education of the public on that point as one of its great functions. I believe we should support it for the sake of distant generations. It should play a great part in the future reckoning of the surgeon.

THE TREATMENT OF TONSILS BY RADIATIONS FROM RADIUM SALTS INSTEAD OF OPERATION.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

THIS paper is a report of progress. The subject is of importance not only to a large number of patients, to the surgeon and the laryngologist, but also to the general practitioner, who is the first to see many of the patients, 500,000 more or less,* who are operated upon each year in this country for the removal of the tonsils.

The basis of this use of radium is the fact that lymphoid tissue, of which the tonsils and adenoids are largely composed, is especially susceptible to its radiations, and further, that the diseased tissue in the tonsil is less resistant to them than the normal. Radium should not be depended upon to get rid of fibrous tissue or pus. The presence of pharyngitis or laryngitis, so far as I have seen, does not contraindicate the employment of radium.

In carrying out this treatment it seemed to me desirable to use the radiations of radium rather than the emanations, as the radiations are uniform in output and thus permit of accurate dosage in a simple and convenient manner.

The method is based upon measurements of the radiations, made with a fluorometer, to determine the proportion of these:

First, that would reach the tonsils through different thicknesses of aluminum;

Second, that escape through the back of the container, and would reach other parts of the throat than the tonsils;

*Tonsillectomies done in 1921 in 24 of the hospitals in Boston and seven adjoining cities, population 1,180,000, were 13,325; operations done in private practice would increase this number. On the basis of these figures, the tonsillectomies done in one year in the cities of the United States of more than 10,000 inhabitants, population 46,750,000, would be 514,240±. The towns of 10,000 inhabitants or less, population 70,000,000, are not taken into account.

Surgeons in this city tell me that more tonsillectomies are done in private practice than in hospitals; this would make the number given above at least 1,000,000 instead of 500,000.

The figures relating to population were obtained through the kindness of Professor Davis E. Dewey.

Third, that are absorbed by different thicknesses of tonsillar tissue;

Fourth, that are absorbed by the tonsillar tissue and the ramus of the jaw-bone.

These measurements showed that of the total amount of the radiations going in any other direction than the tonsil, the proportion escaping from the container used was only about 4 per cent., an amount that may be disregarded; and that of the total amount of the radiations issuing from the front of the container with a filter of aluminum 0.29 mm. thick, the proportion absorbed by 13 mm. of tonsillar tissue was a little less than 90 per cent., and that absorbed by this tissue and the ramus of the jaw was more than 90 per cent. The results of the other measurements need not be considered in detail here.

Naturally, the first thought of many practitioners would be that it is a serious matter to put radium into the throat, and to do this without carefully limiting the radiations would justify the apprehensions that were generously expressed to me by some of my colleagues when I first began to use radium for the treatment of tonsils, but these measurements show that the risk of injury to any part of the throat is negligible, if proper precautions are taken, and they have so guided my clinical use of radium that no harmful results have been noted. Among remedies of great power, I do not recall any in the use of which the action is exerted so completely where it is needed, and, at the same time, to so slight a degree where it is not desired, as is the case with radium by the method here described.

Let us now consider the clinical side. Of a group of 101 patients, the youngest was 5, the eldest 60 years of age, and in their treatment I have been guided by about twenty years' experience in the use of radium. The radium was usually applied in a silver container, about 6 mm. thick and about 16 mm. in diameter (a gold one, made for me since this was, is thinner), that has an aluminum cover 0.29 mm. thick, which acts as a filter. The container is conveniently attached to a light steel rod, that has a handle on the other end, and is covered with a new rubber cot every time it is used. Various other metal filters can be placed over the front of the container to absorb certain of the radiations. The treatments, with 50 mg. of pure radium bromide (26 mg. of radium element), were of about 20, 15, or 10 minutes' duration for each tonsil, according to the filter used, which was of aluminum 0.87, 0.58, or 0.29 mm. thick, respectively. I say "about" advisedly, because the length of treatment depends upon the patient's condition, the size and character of the tonsil, and what one has in mind to accomplish. In some patients there was reason for exceeding these doses; three among them had a moderate reaction for two or three days, but this was not enough to interfere with

their usual diet or occupation. Good results may be brought about without causing discomfort.

The application of radium is simple for the patient. He has only to keep his mouth open while the physician holds the container against the tonsil. The container may be removed at intervals, in order to allow the patient to swallow saliva. If the throat is sensitive, a solution of cocaine may be used; in the majority of cases this has been unnecessary. As a rule, children cooperate readily.

Immediately after the treatment no especial change is noted; sometimes improvement begins promptly, and after two or three days, more or less, there is an exudation from the tonsils, which may continue for some time. Some kinds of tonsils diminish in size very strikingly within a few days, others very slowly. In a very few patients the tonsils have largely disappeared after one treatment, in others three longer applications, given at intervals of weeks, did not give as much result. Enlarged glands show improvement. In some cases the patient's general condition should guide us to the use of radium even when the appearance of the tonsils does not suggest it.

Improvement in the general condition, often marked diminution in the size of the tonsil, after only one treatment, and that not given in large amount, indicates that in a certain number of cases it may be sufficient to carry the treatment only far enough to obtain good drainage.

The earlier patients did not have as much treatment as I now use, but there has been some improvement, locally or otherwise, in nearly every one, with no interference in any case with the customary meals or occupation. The statements of patients, suffering from poisons originating in the tonsils, of improved well-being, alertness instead of lassitude, and desire instead of disinclination for work, have been the rule. It has been difficult to follow some of the patients for any length of time; they were treated, improved, were seen once or twice, and then disappeared. Of those who were treated more than a year ago there are only good results to report.

The following cases were not average ones, but show a striking response to radium treatment in adults:

Mrs. X., 60 years of age, had a succession of four severe colds during the winter; had her teeth x-rayed and as a result of this examination four of them were extracted, but she got no relief. She was below normal in her activities and well-being, and had a slightly ashen complexion.

The right tonsil was on a line with the pillars of the fauces, and the left extended 3 mm. beyond the pillars, was large and discharging, and the gland on that side was large and sensitive. I applied the radium to each tonsil for about 10 minutes, without the use of cocaine.

Within forty-eight hours after the treatment she was much improved and the gland had lost its sensitiveness. The third day after treatment the left tonsil was much reduced in size, and there was a concave instead of a convex surface in the part of the tonsil that had contained small masses of a pus-like material. The right tonsil was also reduced in size. Her improvement was evident in her voice and manner, and in the eyes and the color of her skin.

On the seventh day after treatment the gland had disappeared and both tonsils, especially the left, were greatly reduced in size. She had not had the slightest pain or even discomfort, and there was no change in the daily routine of her life except for the better. On the twenty-first day the tonsils had largely disappeared. When last heard from, six months after the first treatment, she was in excellent health and spirits. This case suggests that in some instances radium treatment, before extracting teeth or doing tonsillectomy, might render these procedures unnecessary.

Mr. Y., 48 years of age, was "crippled with rheumatism," by reason of which he had given up work for 8½ months. The tonsils were submerged and were not visibly enlarged. Both were treated with radium and a profuse exudation resulted.

Within a week he had some relief from rheumatism, in about two weeks he was much improved, and in one of the worst storms of the winter, a day on which he would not have ventured out before he had had radium treatment, he walked 1½ miles to the station and came to Boston to keep his appointment. After two weeks, he expressed himself as being in excellent physical condition, his eyes were bright and his color good. Four months after treatment, when last seen, there was still further improvement in his appearance, there had been no recurrence of the arthritis, and he said that he felt like a new man.

Mrs. E. M., 37 years old. On December 9, 1921, she gave a history of repeated attacks of tonsillitis with arthritis. The tonsils measured 1.5 cm. high by 1 cm. wide. Radium was applied to each tonsil without the use of cocaine. On the fourth day she had marked relief from the arthritis; the tonsils were smaller, and there was no irritation in the throat. On the twenty-first day she felt well, had no sore throat, and no arthritis; the tonsils were slightly smaller. Three and one-half months later, the patient was very well indeed, and the tonsils had disappeared. Six months after treatment she was still free from arthritis, and the throat was in fine condition.

The following case is in contrast to those just cited:

Miss Z. had recovered from an attack of arthritis, but had acute tonsillitis when she

received radium treatment. After one application of this remedy to the tonsils, they were reduced to a very small size and gave no further trouble, but as four weeks later there was another attack of arthritis, a severe one, tonsillec-tomy was done without my being consulted, the small size of the tonsils greatly facilitating the operation, yet neither operation nor radium prevented a recurrence of arthritis; in less than three weeks after the operation she had another attack, followed in about four weeks by still another. At this time an x-ray examination showed abscesses around two teeth; since the removal of these teeth three months ago she has had no further attacks of arthritis. This case suggests that we may be able to infer, by the application of radium, whether or not certain complications have their origin in the tonsils, without resorting to tonsillec-tomy.

During the past winter, the house officers at the Boston City Hospital have chosen radium treatment instead of tonsillec-tomy, except one who had decided on operation before he appre-ciated what radium could do. He, however, chose radium for the removal of the part of the tonsil left after operation. This small group of seven have since been free from their customary attacks of tonsillitis.

Of these 101 cases,

44 had enlarged tonsils;

33 had tonsillitis: 2 acute, 31 with history of recurrent attacks;

24 had enlarged or otherwise diseased tonsils, with complications as follows:

14 arthritis

7 cardiac disease

1 cardiac disease and arthritis

2 nephritis

Of the 44 cases with enlarged tonsils, the tonsils were reduced in size in 41 cases; in 3 they were not reduced.

Of the 33 cases of tonsillitis, the tonsils were reduced in size in 31 cases; the remaining 2 cases were lost sight of.

Of the 14 cases with arthritis, in 11 the arthritis diminished or disappeared; in 1 it remained; in 1 it recurred after both radium and tonsillec-tomy, but had not recurred, when last heard from, after the extraction of two teeth; 1 died of pneumonia.

Radium treatment, of course, had no effect on the old cardiac disease of the 7 cases noted.

The case of cardiac and arthritic trouble, and the 2 cases of nephritis, were lost sight of.

Radium is a powerful agent both for harm and for good. The physician should be well-informed about radium before he ventures to apply it; otherwise he may do harm to some patients, or fail to do the good that should be accomplished. Professional training and experience are required to determine the conditions under which it should be employed for treating the tonsils, and the amount and quality of the radiations which should be used.

Radium is useful for children, and especially so for adults, to whom operation may bring great discomfort and serious danger, and possibly death; as well as for those who, on account of cardiac or other disease, are not suitable subjects for operation.

The radiations from radium salts are, I believe, more suitable for the treatment of tonsils than the x-rays, because the former are uniform in output and thus permit of accurate dosage; and further, because the radiations from radium salts are applied through the mouth to the tonsil and are nearly all absorbed by the tonsil itself, whereas measurements of the x-rays, made with a fluorometer, show that these rays, being applied from the outside of the jaw to the tonsil, are absorbed to a large extent by the intervening tissues, where they are not desired, the parotid gland being especially susceptible to them, before they reach the tonsil.

I have shown chiefly thus far that the method here presented is harmless; that tonsils have been reduced in size; that recurrences of tonsillitis have been prevented, and that some patients suffering from arthritis have been relieved.

DISCUSSION OF DR. WILLIAMS'S PAPER.

DR. GEORGE W. GAY, Chestnut Hill: Dr. Williams's interesting paper, coming as it does from a pioneer in the therapeutic use of diphtheria antitoxin, the x-ray and radium, merits the thoughtful attention of the profession. In over a hundred cases of enlarged, inflamed, or otherwise diseased tonsils he has succeeded in reducing the size and the inflammation in a very large proportion by exposure to the direct radiation of radium. In 77 uncomplicated cases of enlarged and inflamed conditions of these organs a practical cure was obtained in 72 instances and two cases were lost sight of. A painless, non-operative method of treatment of these affections that proves successful in 93 per cent. of the cases is certainly worthy of consideration.

Radium not only has a distinctly beneficial effect upon the size and condition of the tonsil, but the crypts, which are the favorite resort of noxious germs, are obliterated, thus closing what is considered by many authorities a ready avenue by which the products of these bacteria enter the system. If the modern theory that certain diseases, as the so-called rheumatic affections, find entrance through the tonsils be correct, then the importance of destroying this avenue of approach becomes strikingly apparent. Should time and further experience confirm Dr. Williams' admirable results, the radium treatment of diseased tonsils must be considered a distinct advance in therapeutics. There are good reasons for anticipating this desirable result.

Another important feature in Dr. Williams' work is the fact that his scientific attainments, derived in part from his long and intimate connection with the Massachusetts Institute of Technology, of which institution he is a graduate, enable him to determine the ratio of the direct radiation of radium upon the desired area, to the indirect effect, the back kick through the container, of this agent upon the surrounding tissues. He is, thereby, able to remove certain objections that have been advanced against the use of radium in the throat. Another objection that has been made against its use in the throat is that we do not know the ultimate results of the treatment extending over three or four years. From the fact that seventeen years' experience with the agent upon the skin and a year and a half's experience in the throat

have produced no untoward results, this objection would seem to be more academic, more theoretical than practical. Properly used, this remarkable agent would seem to have no deleterious effects, even in those rare instances in which no benefit results from its use.

One important fact in the use of radium should be constantly borne in mind and that is the marked difference in the reliability of the radiations of radium itself and the emanations from a solution of the substance in water. The former are permanent and unchanging; the latter soon lose their power and are useless. Radiation, and not emanation, is the only unailing source of radium effects.

Of course you are all familiar with the happy effects of this agent upon various affections of the skin, as the epitheliomas, moles, birthmarks, etc. My personal experience is confined chiefly to the epitheliomas. The results have been most satisfactory. In the early days of radium an epithelial growth upon my face of three or four years' duration was subjected to five exposures of radium with no discomfort whatever. The crust came off in a short time, leaving a smooth, normal surface and there has been no return for 15 years. So many favorable results have come to my notice that I should hesitate to recommend a surgical operation for the removal of these growths, if proper treatment by radium were available.

In conclusion allow me to say that a painless, safe, efficient and non-operative method of treating diseases of the tonsils that is successful in more than 90 per cent. of the cases, is worthy of the serious consideration of the profession. Dr. Williams' admirable work merits the highest appreciation of the physician and the public.

DR. C. R. C. BORDEN, Boston: I desire to congratulate Dr. Williams on the splendid results which he has obtained by this new method of treating diseased tonsils. The percentage of successes which he has had is remarkably large and I feel disappointed in the results of my own experience.

Toward the close of last year, I was visited by a gentleman who represented one of the large radium companies of the United States. He had been calling upon the various nose and throat specialists to interest them in radium as a substitute for operation on the tonsils. After a consideration of the matter I asked him to treat a series of cases with radium and then allow me to remove the tonsils and study them with regard to their condition. This he agreed to do.

The speaker today has made the statement that the screening of radium is an easy matter.

With regard to this point I should like to report a recent experiment conducted by Doctor L. J. Walker of Boston. He purchased six needles of radium, each containing ten milligrams. As a means of safety these needles were kept in a circular lead case with walls nearly half an inch in thickness. To test the penetrating power of the radium he placed the lead case containing the six needles in a steel safe. In a filing-cabinet in the next room with a thick wall between he placed a photographic plate upon which was suspended a pair of surgical scissors. The following morning the plate was found to show a perfect image of the scissors. Thus, the rays had penetrated the lead case, the steel wall of the safe, the wall dividing the rooms, the wall of the filing-cabinet and the several air spaces between.

The terrific penetrating power of radium as shown by this experiment so alarmed me that I hesitated to employ it within the mouth, and turned my attention to the x-ray which affords a similar and much better known treatment.

It had been known for some time by members of the nose and throat profession, that x-ray was being used by the Rockefeller Institute and Dr. Wetherbee of New York. Dr. Paul Butler and I went to New

York and called upon Dr. Wetherbee. He was exceedingly cordial and frank. He described his large number of cases; gave statistics; showed us his apparatus, and furnished us with his working data as to dosage, spark gap, time of exposure, etc. He also described minutely the early work at the Rockefeller Institute, and generously instructed us how to proceed in a scientific research from the point where he left off.

On our return to Boston we arranged to continue the work for the purpose of determining, if possible, whether or not it was successful and clinically worth while. Dr. Frank L. Richardson offered his services for the anesthesia, a sacrifice of time which was greatly appreciated, since it afforded the best possible opportunity for minute observation during the operations. Dr. Butler, of course, carried on the x-ray work.

The first case was that of a young girl with a semi-acute ear which was discharging freely. Her throat was red, and her tonsils were somewhat enlarged and inflamed. In this case we used one application of the x-ray. Forty-eight hours later I found the ear to be nearly well; the tonsillar inflammation had subsided to a marked degree, and I thought at the time that the tonsils had considerably decreased in size. In looking back over the series of cases treated, I am inclined to think that the supposed reduction in the size of the tonsils was largely imagination. The effect upon the ear, however, was real and remarkable. Four days later I removed the tonsils without any bleeding whatsoever. The operation in the next four cases was also practically bloodless, but one sponge being used in the first five cases. The sixth case bled profusely, requiring the use of many sponges. This case, however, may not have been a fair subject for the series, since two years before the patient had been very ill for several months with black smallpox at her home in Cairo, Egypt, and at the time of our treatment and operation her general physical condition was not particularly good.

If I remember rightly, we treated sixteen cases with x-ray and I operated upon fourteen. The number of treatments varied from one to four. Undoubtedly the x-ray treatments decreased the hemorrhage somewhat, but in that respect one application seemed better than two or more. My own experience is that tonsils treated by x-ray exposure do not decrease much in size. Although on inspection they appear to be smaller, yet when removed they are fully as large as before and in some instances decidedly larger.

The tonsils removed during this series of cases have been preserved. They will be sectioned and studied by Dr. Mallory. When his report is received, we shall have something definite upon which to base a scientific conclusion, but until that time it must remain a matter of opinion.

Personally, I feel, at the present moment, that neither x-ray nor radium has any lasting influence on chronically diseased tonsils which are filled with pus pockets, and that careful dissection and removal are the only means of permanently dealing with them.

Tonsils which the x-ray seem most to benefit were often found, at the time of operation, to be the worst. Some of them are mere bags of pus, and two of them even burst from the pressure of the grasping forceps; yet prior to the time of the operation these tonsils appeared to have become smaller, whiter, and smoother in outline.

If the tonsils treated by Doctor Williams have atrophied to such a point that infection is no longer present or possible, he has accomplished that which will confer an untold blessing upon countless thousands who will escape operation on the tonsil and the discomforts attending upon it. But, may I ask, can we accept Dr. Williams' opinions which are based

upon inspection alone, or upon a more or less temporary cessation of symptoms?

Dr. WILLIAMS (in reply to Dr. Borden): I may have met the same representative of a radium company who saw Dr. Borden. Before answering Dr. Borden's question, I need a little more information; may I ask Dr. Borden how much radium this representative used, and what the quality of the radiation was?

As regards the radium picture of the scissors, it was taken after a very long exposure and by the gamma rays, which form a very small percentage of the radiations from radium, but have great powers of penetration. I tested radium more than 18 years ago and found that, when held on the chest, it would set up fluorescence on a suitable screen placed on the back; I then tried iron and steel, but I did not have enough at hand to absorb the radiations. Then I tried lead, which is far more impenetrable to the radiations than iron or steel,—one inch, two inches, three inches of solid cast lead—and still some radiations went through. In other words, a very small amount of penetrating rays, with a very long exposure, will take a photograph, but a small amount of these rays for a few minutes may be disregarded as to danger.

After 26 years' experience with the X-rays I know that they are very useful. Their disadvantage is their uncertain dosage. You may put the same amount of energy into different X-ray tubes, as far as you can measure it by the spark gap and the current, and yet get different amounts of X-rays issuing from these tubes, or you can put the same tube on different measurements as to spark gap and current, and yet not get the same amount of X-rays. Therefore, I say that the dose of X-rays is uncertain; X-rays may vary in quality as well as in amount. With radium, on the contrary, one may get radiations of the same amount and of the same quality.

Dr. BORDEN (answering Dr. Williams's question): I think you misunderstand me as far as my associations with this man go, for I had no cases with him. He handled cases in this town for other men. He told me that his plates contained 30 milligrams and that they were guaranteed by the United States Government to be pure radium and to be that weight. He, furthermore, told me that most of the radium in use had not been so standardized by the Government, and that very few people knew what was in it.

As regards the measurements of X-rays, it seems to me it would be possible to buy standardized machines and know exactly the spark gaps.

Dr. ALEXANDER FORBES, Milton: I should like to ask Dr. Williams if it is possible to measure accurately the quantity of emanation by the modern electrical methods, and wonder why it is not quite as accurate to use measured emanation as it is to use the radium itself.

Dr. WILLIAMS (in reply to Dr. Forbes): The radiations from the emanations of radium can, of course, be measured, but they lose one-half their strength in less than four days, and this process of decay continues; whereas the output in quantity and quality of the radiation from radium salts is uniform.

Dr. CADIS PHILIPS, Boston: I think we cannot depend upon the appearance of the tonsil alone but we can note the general feeling and the general condition of the patient in regard to joints, headaches, sore throats, etc. I am speaking from the experience of two or three patients I have had occasion to refer to Dr. Williams, and also in my own case. I had reached the stage in my own tonsils when I felt that I must have an operation. I put it off and finally I had Dr. Williams apply radium. They shrunk down to white, small, bodies, and I was re-

lieved of the unpleasant rheumatic symptoms which were putting in appearance, and my general health improved. I know the same thing is true in the case of some of my patients.

Dr. H. V. REYNOLDS, Brookline: I have had several cases in adult women with tonsils diseased who refused positively to have tonsillectomy done and had radium. There was no unpleasant reaction, and the tonsils gradually melted away with no unpleasant symptoms or discharge, and with the improvement in each case such as I had seen following tonsillectomy. In fact, I could see no difference in the after-condition of the patients in tonsillectomy or removal by radium, except that there is a little contracted fibrous tissue at the base of each of the tonsils. The glandular part seemed to have disappeared.

Each patient was an intelligent woman, and each one is satisfied with the improvement that she has noticed from this treatment.

A MEMBER: There were four cases in my outpatient department where I had radium applied to one tonsil only. It was done by the same gentleman of pleasant appearance, to whom Dr. Borden has referred. In three weeks to three months all the tonsils were removed and you could not tell the difference, even in the microscopic examination. There was no shrinkage and there seemed to be no results from the radium.

Dr. WILLIAMS (closing): It seems to me that it is well for a physician to know what goes into the X-ray tube, and also important for him to know what comes out of it.

CINCINNATI UNIVERSITY HONORS DONORS OF LARGE GIFTS TO MEDICAL SCIENCE.

In honor of John D. Rockefeller and Andrew Carnegie, the board of directors of the University of Cincinnati has established two chairs to bear their names in the College of Medicine.

The obstetrics department will be known as the John D. Rockefeller Chair of Obstetrics, and the professorship in biochemistry will be the Andrew Carnegie Chair of Biochemistry.

The University of Cincinnati is said to be the first large university or college in the country to thus honor the names of Rockefeller and Carnegie for efforts made to advance science and education. It was declared that both the Rockefeller Foundation and the Carnegie Foundation, which are endowed heavily, had shown great interest in the scientific attainments of the university.—*The Ohio State Medical Journal*.

CAMPAIGN AGAINST MOSQUITOES.

THE Board of Conservation and Development in New Jersey has recommended the appropriation of one million dollars to be used over a period of five years against the mosquito.

It is claimed that when the State shall have been cleared of mosquitoes the property value of the State would be increased by five hundred million dollars.

New England Surgical Society.

Provisional program of the meeting of 1922, to be held at Burlington, Vermont, Friday, September 22, and Saturday, September 23:

FRIDAY MORNING.

9.00 A.M. Clinic at Mary Fletcher Hospital, Burlington.

12.30 P.M. Lunch at Hotel Van Ness, as guests of the Vermont members of the Society.

FRIDAY AFTERNOON, 1.30 O'CLOCK, Hotel Vermont—Roof Garden.

Hare Lip.—William E. Ladd, M.D., Boston.
Tuberculous Cervical Adenitis in Children.—James S. Stone, M.D., Boston. Discussion: opened by Dr. Frederick Hussey and Dr. Charles G. Mixer.

A New Operation for Retroversion of the Uterus.—John W. Keefe, M.D., Providence, R. I.

Carcinoma of the Cervical Stump.—Lincoln Davis, M.D., Boston. Discussion: opened by Dr. Lyman Allen and Dr. Herbert L. Smith.

Some of the Lessons Learned from a Series of 500 Prostatectomies.—Arthur L. Chute, M.D., Boston.

The Importance of Pycnography in Recognizing the Causes of Obscure Abdominal Symptoms.—Richard F. O'Neil, M.D., Boston.

The Silent Kidney.—J. Dellinger Barney, M.D., Boston.

Kinks of the Ureter.—Arthur H. Crosbie, M.D., Boston. Discussion: opened by Dr. William W. Townsend and Dr. S. B. Overlock.

4.00 P.M. Boat ride on Lake Champlain—Steamer Ticonderoga. Wives and children of members are invited.

7.00 P.M. Annual Dinner on board Steamer Ticonderoga. Address of the President, "Progress in Surgery Overseas." Dr. George E. Armstrong, Montreal.

SATURDAY MORNING, 9.00 O'CLOCK.

Business Meeting.

Local and General Anaesthesia in Strangulated Hernia.—Edward P. Richardson, M.D., Boston.

The Results of Anaesthesia in My Own Service.—Halbert G. Stetson, M.D., Greenfield, Mass. Discussion: opened by Dr. Alfred M. Rowley.

Myeloma of the Spine.—Robert B. Osgood, M.D., Boston.

Myositis Ossificans Traumatica.—Dudley Carleton, M.D., Springfield, Mass. Discussion: opened by Dr. William C. Peters and Dr. Jason Mixer.

NEW "WRINKLES" IN SURGERY.

(Five Minute Topics)

A device for hemostasis and drainage following suprapubic prostatectomy.

A method of implanting radium needles in tumors of the bladder.—John M. Cunningham, M.D., Boston.

The Anal Button for relief of post-operative tension in the Colon.—Ralph W. French, M.D., Fall River, Mass.

Pre-Operative and Post-Operative treatment of toxic myocarditis associated with gall-bladder disease.—Frederick V. Hussey, M.D., Providence, R. I.

Skin Grafting in two stages.—Charles A. Porter, M.D., Boston.

Injuries to the Spleen: including wounds and ruptures of that organ.—Eugene Pool, M.D., New York

City (by invitation). Discussion: opened by Dr. Charles A. Porter.

Diverticulum of the Oesophagus.—Frank H. Lahey, M.D., Boston.

Report of a Case of Diverticulum of the Oesophagus.—Lucius C. Kingman, M.D., Providence, R. I.

Myoma of the Stomach.—Ernest L. Hunt, M.D., Worcester, Mass. Discussion: opened by Dr. Fred B. Lund and Dr. John M. Gile.

12.30 P.M. Lunch at Hotel Vermont.

SATURDAY AFTERNOON, 2.00 O'CLOCK.

Intestinal Obstruction by Enteroliths.—Charles R. Abbott, M.D., Clinton, Mass. (by invitation). Ernest L. Hunt, M.D., Worcester, Mass. Discussion: opened by Dr. P. P. Johnson and Dr. George A. Matteson.

Arterioenteric Obstruction of the Duodenum.—Henry C. Tinkham, M.D., Burlington, Vt. Discussion: opened by Dr. John T. Bottomley and Dr. Charles G. Mixer.

Post-operative Intra-Abdominal Adhesions.—Ralph H. Seelye, M.D., Springfield, Mass. Discussion: opened by Dr. George M. Sabin and Dr. J. C. Hubbard.

NEW "WRINKLES" IN SURGERY.

(Five Minute Topics)

Enterostomy as a safety valve in connection with Intestinal Suture.—Daniel F. Jones, M.D., Boston.

Home-Made Catgut.—Michael J. Fallon, M.D., Worcester, Mass.

Title to be announced.—Ernest T. Wells, M.D., Hartford, Conn.

Title to be announced.—John B. Wheeler, M.D., Burlington, Vt.

Death under general Anaesthetics.—George B. McGrath, M.D., Boston (by invitation).

Surgery in Diabetes.—Arthur T. Jones, M.D., Providence, R. I. Discussion: opened by Dr. William H. Bradford.

Hernia from the Employer's Standpoint.—Robert J. Graves, M.D., Concord, N. H.

Post-operative swelling of the upper extremity following operations on the breast and axilla.—Willis E. Hartshorn, M.D., New Haven, Conn. Discussion: opened by Dr. S. A. Mahoney and Dr. H. G. Stetson.

OFFICERS FOR 1922: President, Charles A. Porter, Boston, Mass.; vice-president, Herbert L. Smith, Nashua, N. H.; secretary, Philemon E. Truesdale, Fall River, Mass.; treasurer, Peer P. Johnson, Beverly, Mass.

EXECUTIVE COMMITTEE: Lyman Allen, Burlington, Vt.; John W. Keefe, Providence, R. I.; John F. Thompson, Portland, Me.; Seldon B. Overlock, Pomfret, Conn.; David W. Cheever, Boston, Mass.

CENSORS' MEETINGS.

The Censors for the several districts will meet for the examination of applicants for fellowship on the first Thursdays of May and November.

The Censors for the Suffolk District will examine applicants residing in that district and also applicants who are non-residents of Massachusetts.

Applicants for fellowship should apply to the Secretary of the District Society of the district in which they reside (have a legal residence) at least one week before the date of a given examination, taking with them their degrees in medicine.

Book Review.

Tuberculosis and the Community. By JOHN B. HAWES, 2D. Lea and Febiger: 1922, 163 pages.

In this presentable volume of modest size, Dr. Hawes deals with tuberculosis as it affects the community. It is not written purely for the medical profession or for the layman, but for any who may be interested in community health as it is affected by tuberculosis. The style is readable, the subject-matter clear to physician or layman, facts are plainly set forth, and important details are not neglected.

The cost of tuberculosis to the community, an argument that generally carries weight, is vividly expressed. The parts that various factors play in the battle against this disease are taken up in detail; hospitals and sanatoria, dispensaries, after-care, the nurse, schools, housing, occupations. Concrete advice is given in the chapters on a Tuberculosis Program for Small Cities and Towns, and Present Needs of the Tuberculosis Campaign.

The writer is to be congratulated on having covered such an important subject so thoroughly in such a few pages. A readable and instructive book, it fortunately lacks that formidableness of size that is so often a deterrent to perusal.

The Massachusetts Medical Society.

MEMBERSHIP CHANGES FOR THE MONTH OF AUGUST, 1922.

OFFICIAL LIST (7TH).

Compiled by the Secretary.

ALPHABETICAL LIST.

Allen, Harold M., Lawrence, office now Room 503, Bay State Building.
Austin, A. Everett, Boston, from 144 Commonwealth Ave. to 270 Commonwealth Ave.
Baker, Chester Stoyke, Lowell, now 10 Merrimack Sq.
Blake, John Baptist, Boston, office now 371 Commonwealth Ave.
Bryant, Mason David, Lowell, office now 9 Merrimack St.
Caisse, George E., Lowell, office now 759 Merrimack St.
Carr, Gladys L., from Weymouth to Dubuque, Iowa, 253 W. 10th St.
Clare, Wendell Phillips, from Boston to Chelsea, U. S. Marine Hosp. No. 2.
Cunningham, Joseph Henry, died at London, England, August 28, 1922, aged 55.
Dudley, Oscar A., from Pittsfield to Cochinuate (Wayland), office Worcester, 614 Park Building.
Everett, Willard S., from Newton Upper Falls to New York City, 303 First Ave.
Feldman, Louis, Boston, office now 360 Commonwealth Ave.

Foot, Nathan C., from Milton to Cincinnati, Ohio, 140 East Interwood Ave.
Gage, Fred Leon, Lowell, office now 9 Central St.
Gibson, David Howard, from South Boston (Suffolk) to Cambridge, 76 Reservoir St. (Middlesex South).
Glickman, Alfred Myron, from South Boston (Suffolk) to Springfield (Hampden), 476 Chestnut St.
Guibord, Alberta S. B., office now Boston, 210 South St.
Hamilton, Wallace F., from Newton to Wellesley, 3 Denton Road.
Howard, Margaret E. P., from Reading (Middlesex East) to Roxbury (Norfolk), New Eng. Hosp. for Women and Children.
Hymen, Max H., Lowell, now 174 Central St.
Lanpher, Howard A., from Chester to Hartford, Conn., 61 Rosemont St.
Learned, William Turell, died at Fall River, August 14, 1922, aged 61.
Marchand, Eleanore G., from Boston (Suffolk) to Salem (Essex South), 260 Washington St.
Marchand, Jean C., Salem, now 260 Washington St.
McCluskey, Richard J., Lowell, now 174 Central St.
McGannon, Thomas G., Lowell, office now 10 Merrimack Sq.
Meigs, Joe Vincent, Brookline, office now Boston, 286 Marlborough St.
Murphy, Thomas W., Lawrence, now 55 Bradford St.
O'Donnell, George Thomas, from Springfield (Hampden) to Dorchester (Norfolk), office Boston, State House.
Oiler, William Richard, from Boston (Suffolk) to Jamaica Plain (Norfolk), office Boston, 226 Marlborough St.
Prince, Calvin Oliver, died at Plymouth, July 28, 1922, aged 49.
Rice, Florence F., from Cambridge to Allston, 25 North Beacon St.
Richards, Cyril G., from Boston to Kenosha, Wis., Kenosha Clinic.
Richards, Thomas K., Cambridge, office Boston, now 520 Commonwealth Ave.
Richardson, Edward P., Boston, office now Mass. General Hospital.
Risley, John N., New Bedford, now 283 Union St.
Scannell, David D., Boston, from 366 to 320 Commonwealth Ave.
Schunk, Clara M., from Melrose to Boulder, Colo., Boulder, Colorado Sanatorium.
Shafer, Rudolph J., Lowell, now 65 Wellington Ave.
Smith, Richard Isley, Boston, now 24 McLean St.
Tighe, Michael A., Lowell, office now 9 Central St.
Walker, Lewis Marshall, from Roxbury to North Little Rock, Ark., U. S. Vets. Hosp. No. 78.
Welch, Edward J., Lowell, office now 226 Merrimack St.
Wight, Freeman Clark, Boston, from 192 Dartmouth St. to 32 Hayward Pl.
Young-Slaughter, Emma E., Lowell, office now 545 School St.

ADDRESSES UNKNOWN.

Azadian, David George.
Kelley, Robert Edward Stack.
Lawlor, John Charles.
McClintock, Elsie.
McConnell, David James.
Seibels, Robert Emmett.
Whitcomb, Clarence Adelbert.

Changes of address should be sent to the Secretary, Dr. Walter L. Burrage, 42 Eliot Street, Jamaica Plain 30.

THE BOSTON Medical and Surgical Journal

Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

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ROGER I. LEE, M.D.

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The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

THREE FACTS CONCERNING THYROID DISEASE.

THE modern conceptions of thyroid disease have been presented from time to time in the columns of this JOURNAL. Certain facts, however, concerning certain aspects of thyroid conditions stand out as of extreme importance to the physicians who are first called to give advice. The first is the necessity of having in mind the possibility of sub-sternal or intrathoracic goiter in all nodular enlargements of the thyroid. This is a condition which distinctly adds to the risk of the operation, and one which may be obviated by the early removal of all low-lying nodular goiters tending to extend beneath the sternum or clavicle. The second fact which should be kept in mind is that malignancy of the thyroid occurs practically always in adenomata of the thyroid which have existed benignly for some years; that there are no features from which the transition to malignancy may be suspected; that when malignancy is present a fatal outcome is almost certain. Hence the removal of benign adenomata of the thyroid in those patients approaching or within the cancer age is even more urgently indicated than in breast tumors, where the percentage of cancer cures is very much higher. Third: Regardless of the views held as to the most desirable method of treatment for thyroid disease,—rest, radiation or surgery,—patients should not be permitted to continue with unfavor-

able progress under any form of treatment until they reach a stage of such intense toxicity that no active measures whatever are possible. Active surgical measures should be undertaken, in cases which fail to improve with other forms of treatment, before such a lamentable and often fatal condition is reached.

EXPERT TESTIMONY IN COURTS.

At a joint meeting of the Hennepin County Medical Society of Minnesota and the Hennepin County Bar Association, the following resolution was adopted:

RESOLUTION—

JOINT COMMITTEE OF LAWYERS AND PHYSICIANS.

1. WHEREAS, there is evidence of a growing dissatisfaction with the present method of adducing expert medical opinion offered in the trial of civil and criminal actions, and

2. WHEREAS, such dissatisfaction is due very largely to the heavy burden upon litigants for expert advice; the prolonging of trial work; and the uncertainty of outcome and difficulty of settlement due to the irreconcilable conflict in the testimony on the opposing sides of the case, and

3. WHEREAS, this situation has developed to such an extent that comment by the trial courts and also the courts of last resort, and by others having knowledge of the facts, is taking on a character tending to cast reflection upon the skill and integrity of the members of the medical profession and legal profession, and

4. WHEREAS, with a view of correcting this situation in so far as may be practicable, a joint committee of the physicians and the lawyers has been making a study of this subject for the purpose of working out and proposing some concrete plan or method to be used in connection with trial court work as a means to remove as far as possible this dissatisfaction,

5. NOW, THEREFORE, BE IT RESOLVED by the members of the Hennepin County Bar Association, and by the members of the Hennepin County Medical Society in joint meeting assembled on May 6, 1922, that all physicians competent to qualify as expert witnesses upon the various subjects in litigation, shall be named annually by the Hennepin County Medical Society, from which number any trial judge, or any one or more of the litigants in any suit, may select a commission of three or more physicians to conduct a joint examination for the purpose of furnishing expert testimony relating thereto.

6. PROVIDED, HOWEVER, that any selection and appointment of any such commission by the court shall be made only upon stipulation of the litigants, and in any case where the litigants cannot agree upon the three names, each

side may select one physician with provision that the two physicians so selected may select a third.

7. BE IT FURTHER RESOLVED, that the compensation for any services rendered in making any such examination, or giving expert testimony concerning same, shall be based upon a schedule to be designated by resolutions of the Medical Society and in no case shall the physicians who make such examinations, or give any such testimony, be permitted to know from what source their compensation is derived, such compensation to be payable through the Clerk of the District Court, or if that is not practicable, then through some trustee.

8. BE IT FURTHER RESOLVED, that it is the intention by this procedure to abolish the established relation of paid employee between any litigant and the physician or physicians giving such testimony in order to secure as far as possible impartial and unprejudiced testimony.

9. BE IT FURTHER RESOLVED, that any physician giving testimony in any case under this arrangement shall be subject to cross-examination under the usual rules by any one or more of the litigants in the case.

The following circular was sent with an explanatory note to each member of the society by the president, to be filled in and returned for use in making up a list to be recommended to the courts:

HENNEPIN COUNTY MEDICAL SOCIETY EXPERT CERTIFICATE AND DECLARATION.

The present method of obtaining expert medical opinion is unsatisfactory. I, therefore, believe that the plan as outlined in the resolutions passed at the joint meeting of the Hennepin County Bar and Hennepin County Medical Societies, May 6, 1922, should be followed until some law is enacted that will make it possible for all expert medical opinion to be given by a neutral commission.

I will be willing, under the resolutions adopted by the two societies, to act as a member of a neutral commission on expert testimony in the trial of civil and criminal actions.

Of the divisions of practice hereinafter specified, I am qualified to act as an expert in the ones checked:

- | | |
|----------------------|---------------------|
| 1—General Medicine | 9—Skin and Venereal |
| 2—General Surgery | 10—Genito-Urinary |
| 3—Orthopedics | 11—Obstetrics |
| 4—X-ray and Radium | 12—Gynecology |
| 5—Eye and Ear | 13—Anatomy |
| 6—Nose and Throat | 14—Physiology |
| 7—Nervous and Mental | 15—Pathology |
| 8—Pediatrics | 16—Bacteriology |
| | 17—Chemistry |

I hereby promise to carefully examine and scientifically investigate any case for which I

am selected to testify as one of a commission of experts; to give expert opinion only in such branches as I have named, after consultation with other members of the commission; and to give an impartial report or opinion, if cross-examined, according to the best of my scientific knowledge and belief.

(Signed) JOHN DOE.

Following is the resolution relating to fees for expert testimony, adopted by the Executive Committee of the Hennepin County Society:

FEES FOR EXPERT TESTIMONY BY COMMISSION.

Be it resolved by the Executive Committee of the Hennepin County Medical Society that the fees for expert testimony by Commission, as per resolutions passed by the Joint Meeting of the Hennepin County Bar Association and the Hennepin County Medical Society, May 6, 1922, be at the rate of \$50.00 for each one-half day, or fraction thereof, consumed per member, as the minimum fee, and the maximum fee to be determined by the responsibility and importance of the case.

—P. W. W.

—*Minnesota Medicine*, Vol. 5, No. 9.

This method is devised for the purpose of securing justice and is commendable from the standpoint of ethics. For a long time there has been a feeling of dissatisfaction relating to expert testimony submitted by physicians. Because of the inability an honest expert sometimes experiences when he is trying to give information, eminent lawyers have deplored the custom which has prevailed, but have felt that any changes might not be in conformity with the principles underlying court procedures. Since the resolutions appearing above have been endorsed by a bar association we may hope that a solution of the problem has been found.

This subject has been discussed in this State, but up to the present time nothing has been done because, according to some lawyers, no plan has been devised which would assure full rights to a defendant in a criminal action. The theory of law seems to be that so long as a defendant's witnesses testify in conformity with the rules of evidence there can be no objection to the use of independent experts.

The action of the Hennepin County physicians and lawyers has only found expression in the form of resolutions thus far. The next question is as to whether the courts will endorse these resolutions and apply them in practice, and then still further, whether attorneys will restrict testimony to experts selected under this plan, for if lawyers are at liberty to ignore the resolutions the system will fall down. The practice in Minnesota courts will be followed with interest.

NEWS ITEMS.

THE BOSTON TUBERCULOSIS ASSOCIATION. The Boston Tuberculosis Association removed its offices on September 1 to Nottingham Chambers, No. 25 Huntington Avenue, just beside the Boston Public Library. Its new offices are in accordance with the modern policy of living in sunshine and fresh air. The rooms are on the sixth floor, high up above Huntington Avenue, and look out upon the end of the extension of Stuart Street and the free space about the Boston and Albany Back Bay station. The Association has been since 1903 on Joy Street, where it has had quarters in the Twentieth Century building. With the increasing contact with business organizations and the coming to the rooms of more and more workers, the Association has felt the need of being in a business location, and it has settled itself just at the border of the coming commercial district in the Back Bay.

It is with regret that the death is announced of Dr. Alexander Richter Craig, secretary of the American Medical Association, which occurred Saturday night, September 2, 1922, at Port Deposit, Maryland.

RECENT APPOINTMENTS.—Children's Hospital, Associate Physicians: Dr. James M. Gamble and Dr. Richard M. Smith. Assistant Visiting Physicians: Dr. Lyman A. Hoag and Dr. Arthur Goulding. Infants' Hospital, Visiting Physician: Dr. Richard M. Smith.

STOLEN CERTIFICATE.—Dr. John O. Caldwell of Sharon has had his certificate of registration as a physician in Massachusetts stolen from him.

WEEKLY DEATH RATE IN BOSTON.—During the week ending September 2, 1922, the number of deaths reported was 185 against 171 last year, with a rate of 12.63. There were 36 deaths under one year of age against 38 last year. The number of cases of principal reportable diseases were: Diphtheria, 47; scarlet fever, 14; measles, 14; whooping cough, 32; typhoid fever, 3; tuberculosis, 35. Included in the above were the following cases of non-residents: Diphtheria, 6; scarlet fever, 5; whooping cough, 2; typhoid fever, 2; tuberculosis, 9. Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 1; whooping cough, 4; tuberculosis, 14. Included in the above were the following cases of non-residents: Diphtheria, 1; scarlet fever, 1; tuberculosis, 2.

CHANGE OF OFFICE.—Dr. John Warren Sever announces that he has moved his office to 321 Dartmouth Street, Boston.

BABIES WEIGHED AT WEYMOUTH FAIR.—An interesting and novel health demonstration was given at the recent Weymouth fair on September 1 and 2 by Miss M. Alice Gallagher, R. N.,

executive secretary of the Norfolk County Public Health Association. A corner of the Norfolk County agricultural tent was set aside and a child-weighing and measuring equipment was installed. There was no advertising, no contest and no prizes were offered, but the mothers quickly sensed the meaning of the work, and in the two days 202 children were weighed and measured. These ranged from babies of seven weeks to school children of 18 years. The results were very interesting, for of the entire group of country children, one in every four was under the proper weight for the height, betokening a degree of malnutrition, while a number of the little ones were more than seven to ten per cent. underweight. Incidentally, Miss Gallagher talked with the parents, and in behalf of her association distributed little pamphlets filled with health facts. It was a revelation to the parents and constituted a bit of educational work such as the association is prepared to do. The baby-weighing scales, which were purchased with money secured through the sale of Christmas seals last winter, were presented to the Weymouth Health Station, so that they may be of permanent benefit to the health of the children of the town.

THE WEYMOUTH HOSPITAL.—This hospital, which was made possible by a drive for funds, is located in South Weymouth, Massachusetts, and will meet the desires of residents and physicians of that region.

The hospital is beautifully located and consists of the remodeled house of the late Albert Tirrell, who was a successful manufacturer in Weymouth. The drive netted \$21,405.75. The cost of changing the building and supplying the equipment amounted to \$7,791.17. The hospital was opened May 22, 1922, and the trustees have reported for two months, showing earnings of \$2,526.82, and expense account of \$1,635.21. Fifty-eight patients have been treated. The majority of the cases have been surgical.

Aug. 30, 1922.

Mr. Editor:

In re Weymouth Hospital: there are 20 beds, operating-room, delivery room and nursery. Miss Minnie M. Shofield is now Acting Superintendent. The Hospital expects to maintain a training school when it gets well under way, probably next year.

Yours very truly,

JOHN C. FRASER.

Miscellany.

NARCOTIC DRUG INVESTIGATION.

THE following statements are found in the extension of remarks in The House of Representatives by Hon. Lester D. Volk:

"In House Resolution No. 258 and in an address before this body on Friday, January 13, 1922, I called specific attention to rules and regulations issued by the Internal Revenue Department interpreting the Harrison Act, and having the force and effect of law,—a document as extraordinary as ever issued by this or any other Government in its presumptuous assumption of authority and ruthless disregard of facts and experience.

I refer to the rulings promulgated October 19, 1921, by the office of the Federal Prohibition Commission, over the signature of R. A. Haynes, Prohibition Commissioner, and D. H. Blair, Commissioner of Internal Revenue.

This ruling, in effect, disposes of a medical and scientific problem relating to the handling of narcotic-drug addicts by eliminating the physician and scientist and turning the entire matter over to Federal police, district attorneys, and favored sanitarium proprietors and underworld peddlers, who have reaped a golden harvest from their nefarious and illicit traffic.

Without any foundation in proven medical knowledge or experience, this ruling asserts that medical authorities agree that addicts may not be treated unless confined within prison or sanitarium walls and that 'this consensus of medical opinion' is used by the Revenue Department as a basis for the policies of the prohibition commissioner.

In the early stages of the discussion of this problem in this House I received a letter from the Commissioner of Internal Revenue, written in response to my request asking to know upon whose authority the remarkable ruling just cited was promulgated. The reply stated that medical and other experts attached to the Treasury Department decided these questions.

The only other explanation vouchsafed was contained in the language of the regulation to which I have referred, which says:

The following resolution, passed by the council of health and public education of the American Medical Association at its (the council) meeting on November 14, 1920, is pertinent in determining the period over which narcotic treatment should be extended in purely addiction cases.

Be it resolved, That the council of health and public education of the American Medical Association indorses the principle expressed in the California law, section 8½, which forbids the use of opium and its derivatives in the withdrawal treatment of those addicted to the use of drugs for a period of more than 30 days after the commencement of the withdrawal treatment.

The American Medical Association may be stated to be the very bedrock of medical opinion in this Nation. It is comprised of the best brain and talent within a noble profession. It has in its membership about 90,000 of the physicians in the United States. It is bound by a code of ethics which has gone further than any other

agency to place the practice of medicine upon the highest pinnacle and plane.

These men and this great institution are unimpeachable. Their integrity is undoubted. Their voice carries with it the weight of a professional body upon which the halt and the lame, the ill and well, must depend for very life itself. And when they speak by resolution we all may listen in full confidence that we are receiving the pure thought of medical wisdom and the real consensus of medical opinion.

AMERICAN MEDICAL ASSOCIATION REPUDIATES ACT OF ITS COUNCIL, ON ADDICTION.

It is of momentous importance, therefore, that the American Medical Association in solemn convention assembled should have arisen in its might and repudiated the minority findings of this so-called council, a group of five men out of this great body,—which minority findings they have dared to set forth, and officials of these United States have accepted, as the solemn opinion of all the medical fraternity.

This repudiation was not the action of a minority committee in the association but resolutions openly introduced and adopted by the vote of the house of delegates of the American Medical Association, representing 90,000 physicians, who had been acquainted with the use made of their organization by the Internal Revenue Department to bolster up unsound policies.

The house of delegates of the American Medical Association also knew to a man this House Resolution No. 258, which specifically described the connivance of Government officials responsible for the Prohibition Commissioner's ruling of October 19, 1921, and of members of the medical profession behind the findings of the council of health and public education of the American Medical Association, as a conspiracy to drive narcotic drug addicts into established sanatoria purporting to treat narcotic drug addiction. (See CONGRESSIONAL RECORD, 67th Cong., 2d sess., pp. 1335-1340, January 12, 1922.)

With this knowledge at hand, the house of delegates of the American Medical Association, representing a true consensus of opinion in general medical practice, voted on May 23, 1922, unanimous adoption of the following resolution, to be presented to this House:

Be it resolved, That the house of delegates of the American Medical Association approves House Resolution No. 258, providing for a select committee of 15 to inquire into the subject of narcotic conditions in the United States.

And so forth. This resolution is a consensus of medical opinion, which neither this House nor the Internal Revenue Commissioner nor the Prohibition Commissioner can overlook or ignore. Nor does it stand alone as an expression of medical thought upon the subject of narcotic addiction and narcotic regulations."

The resolution of the American Therapeutic Society is quoted as follows:

"Be it resolved, That this society indorse the resolution introduced by the Hon. Lester D. Volk, to the end that a careful and scientific investigation of the entire narcotic situation may be had so that both the public and the physician may be benefited thereby."

He then cites endorsement of his resolution by the American Public Health Association and the State Medical Society of North Carolina. His conception of the present narcotic drug situation is expressed in the following language:

"The honest are being persecuted. The innocent are being hounded and harassed and exploited. The sick are being denied care and treatment. The quack and the charlatan and the specific cure promoter are thriving upon their false promises and the hopes and gullibilities of the desperate.

Administration is being perverted and corrupted. Ignorant youth, untaught and uneducated in facts and truth, spurred on and his curiosity aroused by morbid and sensational presentation from irresponsible origins, is being drawn into the snares planted by the harpies of human woe and creators of human suffering—agents of the rapidly increasing criminal underworld traffickers and smugglers and peddlers.

The scientific and clinical work and research of men who have made an honest and able study of addiction is being ignored and blocked from recognition by propagandized unscientific and incompetent 'formularizations.'

From everywhere come increasing records of aggravation of the narcotic situation and of smuggling and peddling and connivance in it of administrative officials, the logical and inevitable outcome of a situation created by ignorance and propagandized misrepresentation and suppression of education and true information.

The time has come when the Federal Government must stand aside in scientific matters involving honest professional judgment and permit medical men to practice their profession unhampered by lay administrative dictation. The yardstick of rule and regulation must be discarded for the truer measure of 'good faith' based upon scientific medical teachings.

Shed upon this situation the light of truth, and all of the truth, and it will become possible of solution and checking and control. In no other way can this be done.

Make public and widespread all that is known or available upon this subject so that administrative officials can not avoid or evade facts and real issues and conditions and the public press can not be manipulated into sensational hysteria-creating advertising of selected cases of vice and degeneracy, to the neglect of the needs of the vast majority of the honest and deserving.

When the awakening and arousing and final expression of real 'consensus of scientific opin-

ion,' as expressed in the unqualified indorsements of House Resolution 258, there can be no further excuse for continued persistence in domination over administration and administrative power and action of the fallacies now openly repudiated.

It rests now with the only unbiased, competent body which can openly and publicly and with widest recognition take up and seriously consider the material and evidence in this narcotic situation and compel its universal recognition—the Congress of the United States."

If there are any criticisms of Hon. Lester D. Volk's resolution they should be made public. If his contentions are sound, the medical profession should be active in support of his efforts.

THE ROYAL SOCIETY OF MEDICINE.

ON the occasion of the annual dinner of the Royal Society of Medicine, presided over by Sir John Bland-Sutton, the Jenner Memorial Medal (awarded to persons whose work has been prominent in the prevention and control of epidemic disease) was presented to Dr. John C. McVail, LL.D. In making the presentation the President stated that vaccination rested today on a surer basis than ever before, and much of that was due to Dr. McVail's work. He believed that Dr. McVail was the first person north of the Tweed to receive that honour.

We have pleasure in joining in the chorus of congratulation to Dr. McVail, and we are glad to recognise that his unremitting labours of the past fifty years have been so fittingly rewarded.—*Glasgow Medical Journal*.

EMPLOYEES MAY SELECT PHYSICIAN.

NOT BOUND TO ACCEPT DOCTOR RECOMMENDED BY EMPLOYERS.

THE Franklin District Medical Society at its July meeting took action in the matter of industrial concerns which hand their employees printed cards telling them to employ certain physicians when they are injured. It was voted to send communications to the newspapers, advising industrial employees of their right to employ any physician they choose. The appended communication is the result of that vote.

"To the Editor of *The Recorder*:

"Owing to the fact that some of our industrial plants see fit to hand printed cards to injured employees, requesting them to go to certain physicians, the Secretary of the Franklin District Medical Society was instructed at the July meeting of the Society to insert in the Greenfield papers a notice to the public informing them of their privilege to employ any physician they themselves may choose for such treat-

ment, regardless of any effort on the part of their employer to influence them otherwise.

"That portion of the Workmen's Compensation Act (General Laws, Chapter 152, Section 30) pertaining to such free choice of physicians follows:

"The employee may select a physician other than the one provided by the insurer; and in case he shall be treated by a physician of his own selection, or where, in case of emergency or for other justifiable cause, a physician other than the one provided by the insurer is called in to treat the injured employee, the reasonable cost of his services shall be paid by the insurer, subject to the approval of the department."

Yours very truly,

CHAS. MOLINE, M.D.,

Sec'y Franklin Dist. Med. Society,"
Sunderland, Mass., Aug. 2, 1922.

—*The Greenfield Recorder.*

EXPOSURE OF THE PROPRIETARY MEDICINE INDUSTRY.

HEARST'S *International* proposes to issue a series of articles setting forth that "The patent medicine of the future is the one that will be advertised to doctors." The author of these papers is Paul H. DeKruif, who is lauded as a "brilliant" worker in laboratory investigation and, according to the prospectus, should be regarded as a great leader. Not having the honor of knowing the writer of these articles, information was sought by letter to the American Medical Association.

The reply is submitted.

Chicago, August 31, 1922.

The Boston Medical and Surgical Journal:

Replying to your letter of August 29, our records show that a "Paul H. DeKruif" was born in Zeeland, Michigan, in 1890, and received his pre-medical education at the University of Michigan. He is also reported to have attended the University of Michigan Medical School during the sessions 1910-1911, 1911-1912 and 1917-1918, but we do not have any record of his graduation or licensure. According to our reports his home address is Zeeland, Michigan. This is all the information we have at this office concerning him.

Yours very truly,

AMERICAN MEDICAL ASSOCIATION.

Obituaries.

HAROLD CLARENCE ERNST, M.D.

Dr. Harold C. Ernst died at the Jordan Hospital, Plymouth, September 7, 1922, where he had been taken a short time previously for an operation, having been stricken while on the way to Boston from his summer home at Manomet. Dr. Ernst was born at Cincinnati, Ohio,

July 31, 1856, the son of Andrew and Sarah H. Otis Ernst. His brothers were the late George A. O. Ernst, a prominent Boston lawyer, and Major-General Oswald H. Ernst, U. S. A., retired, now of Washington, D. C.

Dr. Ernst was fitted for college in Boston, graduating at Harvard in the class of 1876. He was pitcher on the celebrated Harvard baseball nines, J. A. Tyng being the catcher, the battery being the chief factor in winning several series with Yale. Ernst had a tall, commanding presence which graced not only the pitcher's plate but the army uniform during the World War and impressed the committees of the Legislature when he appeared before them in opposition to antivaccination or other harmful measures. After taking his M.D. at Harvard in 1880 he became house officer at the Rhode Island Hospital, settling in Jamaica Plain in practice in 1881 and joining the state medical society. In 1884 Harvard gave him an A.M. Bacteriology attracted him from the first; he entered the Harvard laboratory and in 1885 was appointed demonstrator of bacteriology, a position he held until 1889 when he was made instructor. In 1891 his title was assistant professor and in 1895 professor of bacteriology, continuing in the office until his death. He taught a generation of students. A pioneer organizer of a department of bacteriology in a medical school, he induced the city of Boston to establish a bacteriological laboratory in the early days, to prosecute work in the detection and prevention of diphtheria. At one time he was asked to make a visit with the staff of the Children's Hospital in order to bring the clinical side of medicine into touch with the laboratory.

In 1896 he wrote "Infectiousness of Milk;" in 1898 "Infection and Immunity;" in 1902 "Animal Experimentation," besides many articles in scientific and medical periodicals during his career. At one of his last appearances in public he gave a talk on "Immunity" at the annual meeting of the Boston Medical Library, January 10, 1922.

In the spring of 1906 Dr. Ernst displayed his great executive ability as a member of the committee which arranged for the dedication of the new buildings of the Harvard Medical School on Longwood Avenue, and he edited a history of the school; in the fall of that year he was appointed a member of the new standing committee on Medical Education of the Massachusetts Medical Society. This important committee was organized at the instance of the American Medical Association. Dr. Ernst remained the efficient chairman until 1919, it having been combined with the committee on medical diplomas when the by-laws were revised in 1913. After the American Medical Association began its series of February conferences on medical education in Chicago Dr. Ernst generally attended, bringing home reports to the Council; he devoted much time to the duties of his office and waged a continuous fight for better registration laws

in the Commonwealth, appearing frequently with persuasive words at the State House.

In 1896 he became editor of the *Journal of Medical Research*, which he conducted with success until his death. He was a fellow of the American Academy of Arts and Sciences, on which he served as a counselor; a member of the Association of American Pathologists and for eight years its president; a member of the Association of American Physicians, of the American Society of Naturalists and of the Boston Society of Medical Sciences, acting as president of the last named organization for ten years.

Dr. Ernst is survived by his wife, who was Ellen Lunt Frothingham of Boston, a sister of the Rev. Paul Revere Frothingham, Congressman Louis Frothingham and Dr. Langdon Frothingham. They had no children.

His social affiliations included membership in the St. Botolph, Country, Old Colony, Plymouth, Tennis and Raquet clubs, and the Thursday Evening Club, of which he had been president.

Representing to the public in a dignified way the higher aims of medicine, his taking away leaves in the community a place that will be hard to fill.

WILLIAM STEWART HALSTED, M.D.

Death has claimed the second of the Johns Hopkins Hospital triumvirate, painted by John Singer Sargent,—the surgeon William S. Halsted. Dr. Osler passed to the great beyond in 1919. Dr. Kelly, we are glad to say, is still with us and actively at work. Dr. Halsted was born in New York, September 25, 1852, and died in Baltimore, September 7, 1922, therefore being in his seventieth year. He was a graduate of Yale in the class of 1874, and of the College of Physicians and Surgeons, Columbia, in 1877. Yale gave him an LL.D. in 1904, and he had an honorary F.R.C.S. from England in 1900, and one from Edinburgh in 1905. His medical training was in the city of New York where he served as attending physician to Charity Hospital, 1881–83; attending surgeon to Bellevue and Presbyterian Hospitals, 1885–87; associate surgeon Roosevelt Hospital and surgeon-in-chief, outpatient department, 1881–87; surgeon-in-chief Emigrants' Hospital, 1881–84, and surgeon-in-chief to the Johns Hopkins Hospital, Baltimore, since 1889; also professor of surgery there.

He was the author of many papers on surgery, pathology and physiology, was a member of the National Academy of Sciences, an associate fellow of the American Academy of Arts and Sciences, a member of the American Surgical Association, a corresponding member of the Harveian Society of London and of the Société de Chirurgie de Paris and many other societies. He was a man of international reputation.

HERBERT JOHN KEENAN, M.D.

Dr. Herbert J. Keenan died suddenly of heart disease at his home in South Boston, September 7, 1922, at the age of fifty-one. He was born in

that part of the city February 10, 1871, attended the Lawrence grammar school and English high school and Harvard Medical School where he received his M.D. in 1894. Since then he had practised medicine in South Boston. He did work for the police department, served on the School Committee in 1903-04-05, was medical examiner for several fraternal organizations and life insurance companies and held membership in the Boston Lodge of Elks, South Boston Council, Knights of Columbus, Charitable Irish Society, Ninth Regiment Associate Members' Association, South Boston Citizens' Association, South Boston Medical Society and the Harvard Club of Boston. In his early practice Dr. Keenan made a specialty of children's diseases. He had a splendid physique, and was a constant attendant at the L-street bathhouse and appeared to be in the best of health until shortly before the end.

He is survived by his widow, Mrs. Nellie Donovan Keenan.

EDWARD ANTHONY SPITZKA, M.D.

Dr. Edward Anthony Spitzka, noted anatomist and criminologist of New York, died at his home in Mt. Vernon, N. Y., September 4, 1922, at the age of forty-six. He was the son of Edward Charles Spitzka, a pioneer neurologist and psychiatrist of New York, was educated at the College of the City of New York, taking his M.D. at the College of Physicians and Surgeons in that city in 1902. He was professor of general anatomy at Jefferson Medical College, 1906-1914. Dr. Spitzka performed the autopsy and examined the brain of Czolgosz, the assassin of President McKinley. His chief contribution to medical literature was his editorship of the 18th American edition of Gray's Anatomy. During the World War he saw service in France in the Medical Corps, ending with the rank of lieutenant-colonel.

He is survived by his widow, who was Alicie Eberspacher of New York.

GEORGE MILBRY GOULD, M.D.

AN important medical writer, one who understood words and their uses, providing the profession with medical dictionaries, also an editor of note, has passed to his long rest. Dr. George M. Gould died at his home in Atlantic City, N. J., August 8, 1922, after a brief illness from heart disease, at the age of seventy-three.

The son of George Thomas and Eliza A. Lapham Gould, he was born at Auburn, Me., November 8, 1848. During the Civil War he served as a drummer boy with the 63d Ohio Volunteers when only fourteen years old; enlisting in the 141st Ohio Volunteers in 1864 he finished the war with that regiment. The Ohio Wesleyan University gave him an A.B. in 1873 and an A.M. in 1892. He studied at the Harvard Divinity School in 1873 and 1874, graduating in the latter year, but without a degree, as had

been the rule before 1870 and the general custom until 1874. For the next ten years he was a preacher, finally taking up the study of medicine at the Jefferson Medical College in Philadelphia and graduating in 1888 when he was forty years old. He began practice in Philadelphia at once, making a specialty of ophthalmology and serving as ophthalmologist at the Philadelphia Almshouse from 1892 and 1894.

Dr. Gould was editor of the *Medical News*, 1891-1895; *Philadelphia Medical Journal*, 1898-1900; *American Medicine*, 1901-1906. While still in the medical school he collaborated in the preparation of a compend of diseases of the eye, published in 1886-1888; he was a fellow of the American Ophthalmological Society; late in life he wrote a series of papers on the effect of eye strain on some noted literary characters such as Francis Parkman and Thomas Carlyle, that excited considerable interest. His first medical dictionary, "Students' Medical Dictionary," appeared in 1890, the eleventh edition of which was published in 1900. The "New Medical Dictionary" ran through ten editions and the "Pocket Medical Dictionary" came out many times between 1892 and 1913, while the "Practitioners' Medical Dictionary" had a large sale from 1906 to 1917. Dr. Gould was author of "Illustrated Dictionary of Medicine, Biology and Allied Sciences," 1894-1913; "American Year Book of Medicine and Surgery," 1896-1903; "Borderland Studies," 2 vols., 1896-1906; "Suggestions to Medical Writers," 1900; "Encyclopedia of Medicine and Surgery," 1900-1913; "Anomalies and Curiosities of Medicine" (in collaboration), 1901; "Biographic Clinics," 6 vols., 1903-1909; "History of Jefferson College," 2 vols., 1904; "Righthandedness and Lefthandedness, etc.," 1908; "The Infinite Presence," 1910; "Life and Letters of Edmund Clarence Stedman" (in collaboration), 1911.

Dr. Gould was married twice, first to Harriet Fletcher Cartwright, of Pomeroy, Ohio, October 15, 1876, and second to Laura Stedman, October 2, 1917.

Men like Dr. Gould are scarce in the ranks of the medical profession. His training as a clergyman gave him facility in expressing thoughts in words; his long study in language made possible the dictionaries; editing three leading periodicals gave practice in writing, an experience which was epitomized in his "Suggestions to Medical Writers;" he performed a noteworthy service in improving the quality of the English used by medical men. The profession is grateful.

RECENT DEATHS.

DR. GEORGE COOK, former president of the New Hampshire Medical Society, and chairman of the New Hampshire Board of Registration in Medicine, died at his home in Concord, September 1, 1922, at the age of seventy-three.

Dr. Cook was born at Dover, N. H., November 16, 1848, and was graduated at Dartmouth Medical School

in 1869, joining the state medical society in that year. He early became identified with the New Hampshire National Guard and served as major and surgeon of the First Division, Second Army Corps, U. S. V., in the Spanish War. During the World War he was chairman of the State Selective Service Board, being too old to enter the active service.

Dr. Cook organized the Alpha Kappa Kappa fraternity in the Dartmouth Medical School in 1890 and since then traveled about extensively organizing similar chapters—forty-eight in all—holding the office of grand primarius for the past ten years.

He held membership in the American Medical Association, the Historical Society, the Masons, the Odd Fellows and the Sons of Veterans. He had served as city physician, pension examiner, and as a member of the consulting staff of the Margaret Pillsbury Hospital in Concord.

A brother and two sisters survive him. The funeral services were held in St. Paul's Episcopal Church, of which he had long been a vestryman.

MRS. ELIZABETH J. COLLINS, cataloguer-in-chief of the Boston Medical Library for forty-two years, has died of heart disease, after being in failing health for two years. The end came September first at three o'clock in the morning.

Mrs. Collins came to the Library five years after it was founded, having been trained at the Boston Public Library under Justin Winsor. Her conscientious and skilled labor has added much to the advancement of the institution through all these years. She will be missed by a large circle of members and friends.

Correspondence.

BIOLOGIC PRODUCTS.

Mr. Editor:

We should greatly appreciate your aid in bringing to the attention of members of boards of health and of physicians the great necessity of using biologic products before their expiration date. During the present summer two instances have come to our notice, in one of which a physician during the present month used a lot of our smallpox vaccine virus which was more than a year old; and in a second case a physician reported a failure to secure a "take" after using our vaccine virus bearing the expiration date May 30, 1922. We are constantly telling boards of health to carry stocks of biologic products sufficient to meet only a one month's demand, and in all our leaflets accompanying our biological products we ask physicians to limit their orders to ten-day periods. We request physicians to keep a record of the lot number on each package and to return any packages which have not been used before the expiration date stamped on the label. A short notice or an editorial would, we feel, be helpful in avoiding just such unsatisfactory results as I have mentioned.

Yours very truly,
BENJAMIN WHITE, Director.

THE STING OF THE SEA NETTLE.

Mr. Editor:

Perhaps this might interest you, if true. A letter from New Hampshire states: "The Boston papers, last week, spoke of the Jelly-Fish as rendering our Down-East swimming contestants unable to cross the English Channel."

Yours sincerely,
DOUGLAS H. STEWART, M.D.
128 W. 86th St., New York City.

The Boston Medical and Surgical Journal

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September 21, 1922.

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The Massachusetts Medical Society.

PAPERS AND DISCUSSIONS OF THE SECTION OF PEDIATRICS

AT ITS MEETING AT THE HARVARD MEDICAL SCHOOL, BOSTON,
JUNE 13, 1922.

THE TREATMENT OF DEHYDRATION IN INFANTS. By OSCAR M. SCHLOSS, M.D., BOSTON.

WHEN one considers that approximately three-quarters of the infant organism is composed of water, it is quite evident that the subject of water metabolism in infancy is one of importance. Each ounce of weight gained in a normal manner means the gain of approximately three-fourths ounce of water. Moreover, every metabolic process in the organism is dependent on the presence of a proper amount and a proper distribution of water; the transfer of nutriment and waste products, the secretion of digestive juices, the secretion of urine, are important examples. The nicety with which the water in the organism is adjusted is regulated by a remarkable mechanism. It is due to no accident that the normal water content of the blood and tissues is regulated to a fraction of a per cent. Concerning the nature and exact processes concerned in this regulation, only a few fragmentary facts are known. For this reason it would seem of little profit to discuss the subject from such an aspect. More, however, is known of the disturbances caused by a deficit of water

in the infant organism, and fortunately something is known of the means of combating it. The rapid loss of water in infants causes a series of serious symptoms and striking perversions of function. These are known to all of you. Many of the symptoms of so-called "Cholera Infantum" or "Acute Intestinal Intoxication" can be attributed to the dehydration of the blood and tissues. This condition usually follows severe or prolonged diarrhea, but is often caused by lessened intake of water, due to refusal of fluid or persistent vomiting. In some cases all conditions are operative.

I have mentioned the nicety to which the water content of the body is adjusted. This adjustment is probably dependent to a large degree on the presence in some tissues of large amounts of loosely bound water which can be readily mobilized. Our interest in these water storehouses arises from the fact that they serve to keep constant the water content of the blood and that the serious symptoms of dehydration usually occur only when the blood shows a loss of water and increased concentration. In other words, it seems probable that in conditions of abnormal water loss the available fluid is drawn first from the tissues until this supply is depleted. After this, water is lost from the blood and serious symptoms occur. From the evidence available it would seem that the importance of tissues in the storage of water is relatively as follows: (1) the skin and subcutaneous tissue, (2) the muscles, and (3) the liver. This is indicated by the results of Freund, Steinitz, and others. In this connection it is of great in-

terest and importance that the earliest clinical sign of water deficit is the loss of skin elasticity. This familiar sign is very definite and easy to demonstrate. When one pinches up a fold of normal skin it has a resistant or elastic feel, and if released suddenly it immediately returns to its former place. If the skin has lost water it does not have the normal elastic feel but can be described as plastic or putty-like, and when released suddenly it returns slowly to its former position. This sign varies in intensity, depending on the degree of water loss. It indicates the fact that the organism is laboring under a deficit of water which if not rectified will lead to serious symptoms.

When the degree of dehydration is marked there is a loss of water from the blood. An increase in the blood concentration in these cases has been shown by Reiss, Salga, Schloss and Marriott and Perkins. It would seem that the loss of fluid from the blood is the cardinal symptom. The various other profound changes are secondary to and dependent on this. Oliguria is constant and anuria frequent and the kidney is prevented from exercising its usual rôle in regulating the acid base balance of the body. Due to this, severe acidosis results. (Howland and Marriott, Schloss and Stetson.) Upon the same cause is probably dependent the retention of nitrogenous waste products in the blood. (Minsk & Sauer, Schloss.)

In 1918 I reported a study of cases of so-called intestinal intoxication which showed a marked increase in the non-protein nitrogen of the blood. It seemed that the symptoms were not dissimilar to those of uræmia, caused as in uræmia by defective kidney elimination, but due to the depletion of water and to resulting direct and remote alterations in the blood and circulation, rather than to pathological renal changes. It did not seem probable that the high non-protein nitrogen of the blood was due directly to the increase in blood concentration but indirectly to it through interference with the secretion of urine. General changes in the circulation have been demonstrated by Marriott and his co-workers. They found a diminished blood volume, diminished volume flow of blood, low blood pressure and capillary stasis. Marriott has called attention to the similarity of this condition to surgical shock. It would seem that all of these disturbances are due to the loss of fluid from the blood.

These in brief are the pathological changes caused in infants by a marked depletion of the body water, and upon these changes are dependent many of the severe symptoms which accompany the condition.

From a therapeutic standpoint the indication in all cases is to restore the water balance of the body to normal. The means necessary to do this depends on the degree to which the depletion has progressed and the severity of the symptoms. The necessity of giving large

amounts of fluid to such cases has been recognized for many years. Large amounts of fluid by mouth is a useful procedure but is adequate only if the dehydration is mild, and in the absence of severe diarrhea and vomiting. Subcutaneous injections of isotonic salt solution have been a regular part of the treatment for a long time, and in the milder cases may be sufficient to restore a normal water balance, especially if the diarrhea has ceased or is slight. A useful addition to the methods of giving fluid parenterally is the intraperitoneal method introduced by Blackfan and Maxey. The efficacy of the subcutaneous and intraperitoneal methods is dependent largely on the degree of water loss and the severity of symptoms. Only a limited amount of fluid can be given by either method at one time; if the blood concentration is greatly increased and the resulting symptoms severe, the patient often succumbs before the water deficit can be restored sufficiently to influence the blood concentration. For this reason additional treatment is necessary in the severer cases. Since the cardinal symptom of severe dehydration and the cause of the severe disturbances is the increased blood concentration, any measure to be of most value should be one to influence this very quickly. It had been found that intravenous injection of isotonic solutions had only a very transitory influence on the blood concentration, and practically none on the symptoms. The blood showed some dilution for about fifteen minutes after the injection, but the concentration quickly returned to its previous level. This experience was quite in accord with the observations on animals by Underhill, Mendel and others. It then seemed advisable to try the effect of intravenous injection of hypertonic solutions following the injection either subcutaneously or intraperitoneally of an isotonic solution, the object of the hypertonic solution being to increase the blood volume by its osmotic pressure. Two types of solutions were tried—hypertonic salt (sodium chloride) solution and hypertonic solutions of glucose. Both had the effect of reducing the concentration of the blood to a marked degree, which effect persisted from two to four hours. Both promoted the secretion of urine, but in this regard the glucose was much more effective. Moreover, it was found that the glucose given intravenously was retained to a large degree, only a small amount appearing in the urine. Since most of these patients are greatly in need of food the caloric value of the glucose is not negligible.

The treatment as applied to the cases of severe dehydration is as follows: the patient is given a subcutaneous or intraperitoneal injection of saline or Ringer's solution, and within one hour an intravenous injection of a 10% glucose solution. The amount of isotonic saline or Ringer's solution to be given varies with the size of the infant, the usual amounts by subcutaneous injection varying from 80 to 300 c.c., by

intra-peritoneal injection from 125 to 400 c.c. Twenty c.c. of 10% glucose solution per kilo of body weight is the amount which is usually given. It is important that the glucose be given within a short time after the saline. It is of greatest importance, especially if the dehydration is at all marked, that an isotonic solution be given before the glucose; otherwise the treatment does no good and may do harm. An important precaution in the preparation of the glucose solution is that it should be absolutely clear. A precipitate, even in small amount, may produce marked and even serious reactions.

The treatment outlined may be repeated in five to six hours if necessary, the necessity to be judged by the condition of the skin and the general symptoms. Usually two or three injections of the glucose solution are sufficient. After improvement is pronounced the glucose injections may be omitted and occasional subcutaneous injections of normal saline are often sufficient to maintain the normal water content of the organism.

The effect of this plan of giving fluid is usually pronounced. There is an early secretion of urine, the condition of the skin becomes normal and the general symptoms rapidly disappear. Due to the removal of its cause, the acidosis is corrected, so that the use of alkali is entirely unnecessary.

In principle, what I have outlined presents little that is original. It is offered merely as a method of combating dehydration in infants that has proved extremely efficacious.

DISCUSSION.

T. M. CARPENTER, Ph.D., Boston: Dr. Schloss has not considered the question of the mathematical side of the water balance. I think it would be interesting to know what the absolute amount of change in percentage was in the total water content of infants as compared with adults. Rubner has stated that with adults a reduction of ten per cent. of the water content results in serious disturbances. The determination of the water balance technically is extraordinarily difficult, and probably for that reason very little work in comparison with other metabolic factors has been done. In addition to that the familiar existence of water all around us has led us to say "what is the use of studying water balance?"

It seems to me that another interesting fact in Dr. Schloss' paper is the effect of the different methods of introduction, of either hypertonic solutions, water solutions, or glucose solutions. For a number of years I have been interested in the metabolism with reference to the method of introduction, and I have been studying the introduction of solutions by various routes, the effect of rectal introduction of sugars, the distribution of alcohol when inhaled and the metabolism of substances when introduced by mouth. I would be interested to know what route is most efficient and whether one can supplement the other.

DR. OSCAR M. SCHLOSS, Boston (closing): In regard to Dr. Carpenter's question, the route by which water is given is of some importance. Most of these infants are suffering from severe diarrhoea or from vomiting. In the presence of vomiting, giving water by mouth is impossible. The water loss through the diarrhoeal stools is so great that it is almost impossible to give

these babies sufficient water by mouth to replace the amount lost, so that this method isn't of any particular value. Infants retain fluids given by rectum poorly, the tube usually causing irritation, so that it is possible to give only a relatively insignificant amount in this way, so that we are restricted to the three methods I have mentioned—intravenously, subcutaneously and intraperitoneally.

One thing I didn't mention was the question of intraperitoneal injection. The giving of fluid intraperitoneally has the advantage of permitting the use of larger amounts of fluid than either of the other methods. It often causes a mild disturbance. It causes a sterile inflammation with exudate of cells, causing no apparent harm except as evidenced by abdominal distention. In most instances it should not be repeated under 24 hours.

With regard to our general knowledge of the water balance in infants, little is known. There have been no accurate determinations due to the difficulties which Dr. Carpenter had in mind. That is, in determining with accuracy the amount of water lost in various ways.

THE PEDIATRIST'S OPPORTUNITY.

By EUGENE R. KELLEY, M.D., BOSTON.

CHILD hygiene is largely the outgrowth of the pediatricist's vision, enthusiasm and faith. Child hygiene as a result of its meteoric expansion in the past fifteen years has in many ways grown away from the pediatricists and the medical profession. Child hygiene now involves many fields of social endeavor which have hitherto been remote from the purview of the medical mind, as, for example, the subject of supervised play. Child hygiene now numbers among its exponents, and is yearly bringing into greater public prominence members of professions and specialized groups within professions, the scenes of whose original training are far removed from the anatomical laboratory or the clinical amphitheatre. Their ways are not our ways, their language is not our language, their thoughts are not our thoughts. Yet, as I will later attempt to illustrate, this subject is essentially one that must rest upon medical and hygienic scientific principles for its bed-rock foundation if its present glowing promise is to be fulfilled.

In the world of scientific medicine the group that by training, aptitude, previous experience and natural association of every-day work comes into most direct contact with the problems of child hygiene is the children's specialist, the pediatricist. Hence, as I see it, child hygiene may be most truthfully and accurately characterized as the pediatricist's opportunity. But as I look back upon the impetuous sweep of the rising tide of popular interest in this subject during the years just passed the question occurs if the title ought not to go a word further and read, "The pediatricist's *vanishing* opportunity."

Perhaps the most striking recent feature in the child hygiene movement has been its constant expansion. There is but little exaggeration in saying that infant feeding was almost synonymous with child hygiene in the begin-

ning of the modern development of the subject. The possibilities of school hygiene had been recognized by pioneers in the ranks of public health and public education three generations ago. Here and there dentists were beginning to emphasize the significance of oral hygiene; public health nursing in its modern form was making itself known about the same time, but in my own experience as a medical student, I can testify that "modified milk" summed up about all that was taught inside the medical school in reference to child hygiene; and, broadly speaking, little more than that was actively discussed by any organized groups outside the medical school.

It sometimes seems to the medical health administrator that the medical mind still looks fixedly at the magic formulae designed to make cows' milk safe for infancy almost to the exclusion of real comprehension of the wide ramifications of modern child hygiene as a specialized division of public health and public welfare. Sometimes it seems as if the procession has passed him by and instead of the pediatricist being in the front rank of the movement we see there public health nurses, dentists, dental hygienists, nutrition workers, physical educators, social service workers, chemists, bacteriologists and (a slightly pathetic figure in this connection) the medically trained professional health official who never enjoyed the advantages of any special training or experience in pediatrics. This statement, of course, does not include the small group of pediatricists who have perseveringly fostered the infant and child hygiene movement from its inception: brought it through its early years of financial inanition; overcome those acute organization exanthemata which afflict the childhood of all our voluntary health movements as inevitably as do measles their little human patients, and who now can see with satisfaction the prominent place child hygiene has come to assume in our national life, with countless numbers of enthusiastic laity who are today demanding greater attention to child hygiene all over the land. But when the health administrator surveys this rapidly growing army of child hygiene enthusiasts, and looks about for the pediatricists to act as the commissioned officers and drill sergeants of this new army, he doesn't find them—at least not in any such numbers as they should be found.

This is a serious situation. The child hygiene movement needs the pediatricist. Increasingly, I think, the pediatricist of the future will need the child hygiene movement. I cannot but feel that medicine in general and the specialty of pediatrics in particular are failing to measure up to their opportunities in relation to child hygiene, particularly along the lines to which I will now briefly allude:

(1) There is an obvious failure on the part of medical schools to teach the phenomena of the normal in relation to infancy and childhood. The average young medical graduate has

some idea of how to proceed when confronted with a morbidity problem in relation to childhood. He is far more frequently than the proverbial nine times out of ten quite at a loss when consulted for hygienic advice by the mother of the well baby. Yet a refrain that runs throughout all the teaching of the child hygiene movement, a message that is being shouted at American motherhood today by lecture, by pamphlet, by prize school essays, by the daily press, by popular magazines for women, by stereopticon, movie and radio is short, hortatory and emphatic, and runs as follows: *Consult your doctor, and follow his advice before baby gets sick.*

(2) There is another way in which I feel the pediatricist is not measuring up either to his opportunity or his duty in this field. It is simply this. On account of his peculiar training and experience the community has a right to expect him to contribute his advice, time and energy in the child hygiene campaign as a public spirited citizen—not by lending a hand to a biennial two-day weighing and measuring campaign, with its hubbub and frequently misleading results, but by being on the child hygiene job all the time, talking it, urging it, in public and private, by actually practising preventive pediatrics on both a fee and a free basis. The public and all the other workers in the campaign look to the pediatricist as the natural leader *par excellence* of the entire child hygiene movement, and, as I have previously said, it is rather a shock to look about and see how few of our best and busiest pediatricists are really actively engaged in any phase of continuous child hygiene service.

A new federal measure which has been so extensively discussed that it needs no comment here, the so-called Sheppard-Towner Act, has introduced a new and extremely far-reaching factor into the subject of child hygiene in this country. It is not intended to discuss any of the principles involved in this act at this time. I only wish to point out to you how this law has generally stirred up public interest and awakened public opinion as to the potentialities of a comprehensive national child hygiene program, regardless of the existing differences of opinion concerning the soundness of the principles involved in this particular measure.

The people are thinking, talking and eager to learn more about child hygiene. We have notable examples abroad of tremendous interest in this subject awakened during and sustained since the war. Sir George Newman, Chief Medical Officer of the Ministry of Health of England, states the fundamental importance of the subject in three terse sentences: "The health of the mother and child is obviously the primary step in the health of a community. For here is the source of a nation. It is almost true to say that, from a health point of view, what the mothers and children are, the nation is and will be." The thing that strikes a health ad-

ministrator most forcibly in reference to child hygiene when contrasting conditions in this country with those of England is the practically universal acceptance there of the national and local governments' responsibility in the matter.

The following table shows the astonishing rate of growth of the maternal and child hygiene movement in England and Wales in recent years as reflected in the statistics of the number of infant welfare centers, the number of nurse workers, and the infant mortality rate. Unfortunately, the number of full-time and part-time pediatricists and medical child hygienists are not given, but that they are very numerous can be judged from the context.

ENGLAND AND WALES.
Child and Maternal Hygiene.

Year	Health Centers	Non-Medical Workers Number	Infant Mortality Rate
	Number	i.e., Nurses and Nutrition Workers	
1913	No report	No report	108
1914	250	" "	105
1915	400	" "	110
1916	720	" "	91
1917	970	2555	96
1918	1133	3068	97
1919	1412	3074	89
1920	1754	3359	80
1921	1960	Not given	Not given

The degree to which governmental child hygiene directly affects the people of England is epitomized in the statement of Sir George Newman in his last available report that in 1920 "at least one-sixth of all babies born came under the regular supervision of the doctors and nurses of the infant welfare center in addition to a much larger number visited in their own homes. *These are ordinary normal babies.* They are brought for observation and advice, not for treatment. The center is not an outpatient department nor a treatment clinic." In other words, this is nation-wide practice of infant hygiene in contrast to practice of pediatricians as the term has hitherto been understood. I have cited British progress in child hygiene at some length not because I think the system is one that will ever be adopted *en masse* in this country, but because I believe it is a fair picture of the rate of development in child hygiene work which we may anticipate with absolute certainty in the next ten years. This means that medical men must be found to take charge of these clinics and the medical men ought to be, whenever possible, pediatricists trained in preventive pediatrics.

Other factors, of course, have entered into the stimulation of public interest in child hygiene besides the passage of the Sheppard-Towner Act and the example of the English child welfare movement. The increased interest in such

specialized phases of child hygiene as nutrition, dental hygiene, school hygiene and physical education all throw into greater prominence the fact that child hygiene is a mighty national problem and, regardless of the advances along these specialized lines, that in the last analysis it is an indivisible and predominantly medical problem.

Our failings in national physique as revealed by the draft examinations and the newer developments in the great subject of mental hygiene also show that the problems uncovered point back largely to child hygiene as the means by which we can best hope for the correction of these national deficiencies.

What I want to make clear is that this problem is one that calls for highly technically qualified leadership. At the present time there is a very definite tendency towards the development of non-medical leadership in the child hygiene movement in this country, with all the attendant dangers to the cause that such a development entails.

No one recognizes this danger more clearly than the representatives of the two other professions that have been thrust by force of circumstances into positions of leadership in child hygiene—the nursing profession and the as yet but partially formed profession of social work. To a lesser degree nutrition experts and physical educators are also having forced upon them the problem of shaping policies and ways and means of practical procedure in child hygiene. Frequently in the past three years have I heard representatives of these various professions plead for the great need of qualified medical personnel to take the lead in shaping our rapidly, even if largely unconsciously, developing national policy in child hygiene.

Coming to the real crux of this paper, I wish to present the reasons why it seems to me that it is imperative that the specialty of pediatrics should not merely continue, but should greatly extend its past leadership in the development of the child hygiene movement. To fully show what this means it is necessary to face at once a fact that medicine as a profession has always refused to face; viz., that clinical medicine does not to any appreciable degree teach the art of preventive medicine. It does offer, however, considerably more than a bowing acquaintance with the fundamental sciences of preventive medicine or hygiene. Medicine has from time immemorial focused upon the attempt to mitigate the course or prevent disastrous effects of already-established morbid processes. It has had pitifully little to do with endeavoring to prevent morbid processes from beginning, as Sir James Mackenzie has so forcefully pointed out in his revolutionary little book, "The Future of Medicine."

Nevertheless, because the basic knowledge for either curative or preventive medicine must be the same, and because training in clinical

medicine is, in my judgment, unquestionably the best preliminary training yet devised for child hygienists, any other professional group carries heavy handicaps when it assumes, or, as is more commonly the case, is drafted for responsible executive positions involving formulation of policy and methods of procedure directed toward the whole broad field of child hygiene. Here lies what is at once the opportunity and moral duty of pediatrics and the greatest danger our national child hygiene program now faces. I refer to the crying need for pediatricists with vision and training on the preventive side of medicine to assume leadership in this field, and, failing this, the danger of the movement's dissipating much of its present energy and forfeiting much of its present enthusiastic support, as a result of untrained leadership of non-medical individuals. In addition to the relatively small number of physicians with pediatric training needed to be transformed entirely from the old man of clinical medicine into the new man of child hygiene to furnish the full-time teachers and general staff of our army of child hygiene workers, I also put in a strong plea for all pediatricists to engage *actively* in such degree as individual gifts of personality and circumstances of environment may permit in the business of helping to train and guide this growing army of non-medical child hygiene workers.

Among many reasons which could be expanded to great length in support of the statement that a medical background in general and a specialized pediatric background in particular are almost a *sine qua non* in the development of proper perspective in child hygiene, these few may be specially cited. Or it might be more correct, as well as more forceful, to put it the other way round and say that the following roots of the child hygiene problem grow out of a soil which only medical training fits one to cultivate intelligently.

1. A large share of our present-day child hygiene program is still greatly affected, or, in fact, made necessary by conditions handled hitherto through clinical medicine alone. I refer to the great group of child hygiene problems growing out of the acute infections of childhood—sequelae and complications traceable directly back to previous attacks of measles, whooping cough, scarlet fever, meningitis, poliomyelitis, etc.

2. Another group of infections not so exclusively allocated to childhood—in fact, diseases affecting adults equally or more, but which create no small fraction of the problems of the child hygienist—are gonorrhoea, syphilis and tuberculosis.

3. Still another group of morbid conditions which complicate the child hygiene problem, and which call for medical background for their intelligent handling, are those numerous developmental or acquired physical defects of childhood, of which defects of vision and hearing,

adenoids and postural defects are prominent examples.

4. Another great factor in a successful child hygiene program is the ability to recognize and evaluate properly the bearing of nutrition and malnutrition and to apply appropriate measures to all problems relating to the digestive and assimilative capacities of the child. No argument is necessary to show that medical training is indicated here, but much awakening within the profession is still needed to convince both the doctor and the layman that to really cope with the child hygiene problems of this group a medical *plus* training is needed. The *plus* represents real knowledge of the basic sciences of nutrition and food values and an appreciation of the art of child nurture generally.

5. Nor can we for a moment overlook the fact that child hygiene demands a keen appreciation of the fundamental importance of mental hygiene as applied to child life!

To properly comprehend and, as far as may be possible, provide compensating and protective processes for the feeble-minded; to be able to plumb the psychological depths of childhood phobias and incipient childish psychoses; and, in general, to understand the best methods of adjusting the unfolding mentality of the normal and, still more, of the super-normal minded child, is an essential part of the program of child hygiene.

To give the impression that child hygiene should be held as the exclusive preserve of the pediatricist would be grossly unfair to many other professions and specialties doing pioneer and invaluable work in this great field, but to do justice to these groups would too far transcend the limits of your patience and the rules of this section. Suffice it to say that I wish to pay hearty and sincere tribute to them all. More power to them all! The nurse, whether institutional, public health, district, tuberculosis or industrial as to specialty, fills a commanding place in the program. The dentist and dental hygienist, the nutritionist, the research worker, the psychologist, educator and social worker—all have their indispensable part to play; but I hope I have to some degree made clear the fundamental non-substitutable (if there be such a word) position that the child hygiene program reserves for the pediatricist. I trust I also have indicated the growing feeling of dismay with which the health administrators of this country look about them and see the so inadequate response of volunteers from the pediatricist ranks coming forward to fill these positions. The financial reward of the medical child hygienist is very meagre, and the work involves to a large extent the surrender of that complete individual freedom of action which is so dear to the medical heart; but I know of nothing in the whole range of medicine, hygiene, sociology or public service where the opportunities for scientific, lasting, humanity-benefiting service are greater today than in this field of child hygiene.

DISCUSSION.

DR. M. E. CHAMPLION, Boston: Dr. Kelley has given you an outline of what we hope child hygiene will be in the future. I merely want to touch on a few concrete points where the pediatricist can do good at the present moment. There are certain fields which are decidedly open to him at the present time which are not being covered in any adequate way. I suppose that all types of work outside of that carried on by the individual practitioner may be divided into public and private. As a matter of fact, all the public work has grown out of some type of private action. In some places the public action is yet to be undertaken. The City of Boston, I suppose, is a pretty good example of that. The people who control the appropriation of money in the City of Boston have never seemed willing to appropriate enough money to carry on child welfare work. As a result the work that is being carried on in this field is carried on by private agencies. Therefore the pediatricist who works with the private agency has the opportunity of shaping to a certain degree the course of the public agency when it takes over the work.

There are certain types of work which ought to be mentioned. In the first place, there is the administrator in the private agency. He is often the secretary or perhaps the president of the board or serves on some advisory committee. And then there is the man who carries on the clinical work. That man has an important position, for if he is wise, he will start the child hygiene work in such a way that when the community takes it over it is not involved in the complications of "State medicine"—complications which are hard to get rid of once they are fixed on any public agency.

Then there is the other type of worker, the one who is working in the public service and is paid out of municipal funds. There again he may be an administrator, but these administrators are not very common.

I have been much interested in looking over the lists of those in charge of State child hygiene activities in this country. These directors have been generally public health nurses. It must be acknowledged, however, that since the much-criticized Sheppard-Towner Act has gone into effect we have seen more physicians going into this field.

Furthermore, there are other opportunities as well. We need investigators, physicians who are qualified to look into the question of infant and maternal mortality, because these figures which Dr. Kelley has put on the board are hard to explain—very hard to explain—particularly the 75.9 per cent. mortality among infants. I wish that we could feel that we knew exactly the reason why we had such a tremendous drop in infant mortality last year. We need trained men to investigate that.

There is an opportunity which I want to stress in closing, which occurs, at present, in 355 cities and towns in Massachusetts: It is in connection with the position of school physician. Some months ago I attended a legislative hearing where somebody said that only the poorest doctors in the town were school physicians. That of course was an unjust statement to make. Nevertheless, many of the best trained men do dodge that job. It is an opportunity for public service, though not for making money, and if we could get physicians throughout the State to feel that there is an opportunity to take charge of our children when they are in a normal state and to keep them in that state and thereby to help the municipalities to do good service, it would do more for child hygiene than anything I know of.

DR. E. H. PLACE, Boston: After hearing this paper of Dr. Kelley's, I can only emphasize a few points which are important. The first that he spoke of was

the absolute necessity for physicians doing work among children to be well grounded as to the normal child. Many of us have graduated from medical school so long ago that we look back and see that very little information was given on the care of the normal child, and many of these problems put up to us by mothers we are unable to answer. It seems to me that that must not happen in the future. It seems to me that the coming generation of physicians must be made to recognize and know the normal child, and that applies to all of us who are now practising.

The child hygiene movement at the present time is going forward very rapidly, and it is obvious that the movement is going still farther, and the only question is—who is going to guide that movement? Unless it is going to be guided by pediatricists, it is going to be guided by people lacking in knowledge and it is going to be guided along lines which are undesirable. So, from every point of view, it seems to be our responsibility to see that it is to be developed upon a sound, medical basis.

DR. ELLA G. STONE, Boston: When Dr. Kelley was speaking, I was thinking of the large number of nurses and social workers engaged in child hygiene activities, mostly women, no doubt, judging from Dr. Kelley's urgent appeal that more medical men enter this field that these women may be properly directed.

It seems to me that here must be an opportunity for women physicians to do their best work. Women have a natural interest in children and do not need the stimulation that men require. The average young man who starts out on his medical career doubtless knows or cares little about children. His natural inclination generally leads him into other lines of medical work. On the other hand, the aspiration of the average normal woman, whether she be a member of the medical profession or any other profession, is to have a home and children of her own to love and care for. The vocation of nursing and caring for children seems foreign to the nature of men. Way back in the dawn of animal life, sex determination ordained that this should follow without any discredit to the male. Let us be wise in time and try to coordinate our child betterment endeavors with adult welfare or all our effort will be worse than useless. We may wake up to find that we have been simply amusing ourselves for profit or caprice in experimenting with plans for the betterment of the status of children only to throw them into the scrap heap when matured.

For the best and highest development women need the soul-satisfying work of caring for children. It is nature's decree—their dominant impulse is maternal. Therefore, in view of woman's natural selection for the purpose of reproduction and care of children, the fitness of encouraging women physicians to enter the child hygiene field seems apparent. I am sure they do very acceptable work.

DR. J. L. MORSE, Boston: I was much surprised by one thing that Dr. Kelley said, and that is that social workers or public health workers would like to get information from doctors. With two exceptions, I have never met a social worker or nurse that desired to get any information from a doctor or be told anything by a doctor.

In speaking of the different classes of people in social work, we have one class that is in it for amusement or because they haven't anything else to do. Then we have another class, that is being paid for it—the social workers and the nurses. No wonder the interest of the social workers is being stimulated! The nurses are also getting paid for their work. No wonder they are interested!—they have a good job. Now the poor doctor is again asked to be the goat,

as all of us now are, to give his time and work for nothing, or if he doesn't give it for nothing, to give it for a salary which is entirely incommensurate with what he could earn in any other way. It may be the doctor's duty to take up this work, as it is his duty to take up a great many other things, but he has got to do it as a duty and look for his recompense in heaven and not on this sphere. That may be one of the reasons why doctors are not interested. They are expected to do it all for nothing.

DR. EUGENE R. KELLEY, Boston (closing): Some of the things brought out in the discussion were very interesting to me. I want in closing to comment on some of the things which Dr. Morse said; but the first thing I want to comment on is that there is a great and growing willingness among well-informed people to pay for prophylactic advice. You would be surprised to know the number of times people in my position, *i. e.*, public health workers, find the truth of that statement. The position of the young clinician that he will not take any money unless he can deliver something directed toward a correction of a morbid process is fundamentally wrong. There is an unlimited opportunity for financial return for the pediatricist practising hygiene on the fee basis, and I don't think it is being cultivated. The great army of pediatricists is refusing to go half way. I think it is ethical for us to urge them to do it and to urge the people to pay them.

DR. J. L. MORSE: That is a large part of my work, Dr. Kelley.

DR. E. R. KELLEY: But you are an exception. That is, people are ready to pay for the advice. There are one or two men in Boston and one or two in the Middle West and Dr. Mason in Baltimore who are all actively hammering on that point throughout the country, but most pediatricists are not trying to practise preventive pediatrics.

The point brought up as to the exceptional opportunity of the woman physician is to a limited extent true. So much has been said about women not being wanted to be considered as women *per se* nowadays, that I have grown chary about bringing it up; but I agree that there is a peculiar opening in the child hygiene service for woman physicians. They can get the approach to the mothers quicker than the average male pediatricist. I don't think that holds, however, after the individual acquaintance has once been made.

Then we have to look at this question along statesmanlike lines. After all we are faced with the grave uncertainties of race as a world-wide problem, and one fundamental fact which we can get from the chaos of facts is that the birth rate of the white race is going down and the only thing we can do is to save more of those who are born. So from the patriotic basis the child hygiene movement ought to be advanced. We are not going to have unrestricted immigration in the future, and the future of this movement depends on the patriotism and self-sacrifice with which the people of this country take up this question.

The points which Dr. Morse raised I don't know how to answer. It is, I feel, unfair to the nursing profession and to the social workers. We have to stand that trying attitude of the nurse and social worker. On the other hand, there is another side to it which you will never adequately comprehend so long as you stay in clinical medicine. You have got to get out of it and you have got to get to the point where the nurses and non-medical public health workers will have confidence in you. Then you learn they have a feeling that they are being pushed aside by the hauteur of the physician. After a while when they find perhaps they haven't made so many more mistakes than he they rise to a point of indifference to the doctor's attitude. I think Dr. Morse's way of

solving the problem isn't right. The social workers are guilty of many errors of omission and commission, but there is also another angle to it, and that is the need of the medical profession reaching them when they are young and plastic and to teach them in a sympathetic and broad-minded fashion how best to do their work and pay proper ethical tribute to the medical man's rights. I think they can come back at us and say they haven't had that treatment from the medical profession. I once had this point of view fully presented to me by a nurse who spoke of the growing breach between the medical and nursing professions. She was both a daughter and a granddaughter of a physician and knew the medical side of it.

TONSILLECTOMY IN THE CONTAGIOUS DISEASES.

By EDWIN H. PLACE, M.D., BOSTON.

THE importance of the tonsils in the acute infections as a point of attack and as a portal of entry for infections, as, cervical adenitis, cervical cellulitis, arthritis, endocarditis, pericarditis, septicaemia and pyaemia, etc., is so much a matter of common experience as to require no demonstration here. In scarlet fever and diphtheria this is particularly striking. In scarlet fever occurring in tonsillectomized cases the throat symptoms are almost invariably slight even to the point of absence. In a few cases under my observation in which only one tonsil had been previously removed the tonsillectomized side of the throat was nearly normal, while the tonsillar side showed the usual throat picture of scarlet fever. Severe faucial diphtheria is excessively rare in tonsillectomized cases, and when diphtheria of the throat occurs in such cases it is posterior to the posterior pillars. It is not in the scope of this paper to enter a discussion of the function of the tonsils if any. In our experience there has been little, if any indication of a deficiency in the resistance of tonsillectomized cases. In spite of abundant evidence of the disastrous part played by the tonsils in the acute contagious diseases a tremendous conservatism has looked askance at any operative procedures in these cases. This has been chiefly on the basis that the throat wound would increase the danger of infection and partly because of the fear of anesthesia complications, hemorrhage, etc. In the early days of our experience, beginning in 1906, a few operations were unfavorable, no benefit occurring. This was, however, when tonsillotomy rather than tonsillectomy was practised. The harmlessness of the operation was early brought to my attention by a case of a school teacher who was operated on the second day of a severe tonsillar infection. She had had many previous sore throats and the operation was planned for the next vacation. Before this time, however, she developed a severe throat and decided to have her tonsillar illness and operation at the same time for economic reasons. The afternoon of the same day, it was found that the throat infection was that of scarlet fever. Although the onset was severe the decline was extremely rapid

and satisfactory and no complications occurred. The throat was not more than usually sore for tonsillectomy and less sore than most cases of scarlet fever of the severity of her attack. Since then a more and more favorable attitude toward tonsillectomy and adenoidectomy has developed and this paper is an analysis of all cases operated on at the South Department in the past five years. One must appreciate that these patients are very prone to complications throughout the course of their disease, and even if the operation is favorable in general that some complication may occur following it. It is, moreover, difficult to determine whether the tendency to complication is greater or less after operation, as the operative cases are particularly selected because of factors which favor complications in this group as against the control groups.

SCARLET FEVER.

122 cases of scarlet fever were operated. The ages were as follows:

Years	Cases	Years	Cases
$\frac{1}{2}$ -1	2	8	9
2	9	9	6
3	18	10	4
4	16	11-15	13
5	16	16-20	2
6	13	21-25	4
7	10		

The time in scarlet fever at which operation was performed was as follows:

Time of Disease	Cases	No. developing complication after operation (excluding contagious diseases)
2nd day	2	0
3rd "	7	2
4th "	3	0
5th "	1	0
6th "	3	0
7th "	1	0
2nd week	5	0
3rd "	4	1
4th "	15	3
5th "	12	3
6th "	11	4
7th "	9	2
8th "	9	1
9th "	4	3
10th "	5	0
11th "	4	2
12th "	5	2
13th "	3	1
14th "	5	2
15th "	3	1
16th "	3	1
17-24th "	8	0

The complications of scarlet fever in this group preceding operation were:

Cases	Cases
Otitis media	46 Arthritis
Rhinitis	40 Mastoiditis
Septic sore throat	21 Bronchopneumonia
Cervical adenitis	15 Measles
Periodic fever	7 Diphtheria
not accounted for un-	Peritonsillitis
less by tonsils	Pertussis

Cases	Cases
Endocarditis	2 Pyelitis
Bronchitis	2 Impetigo
Tonsillitis, secondary	2 Corneal ulcer
Sc. fever reinfection	2 Pleural effusion
Nephritis	2 Pericarditis
Parotitis	2 Persistent tonsillitis
Catarrhal jaundice	2 T. B. of adenoid
Burn	1

No complications were present in 23 or 18.8% but of these 11 were operated on in the early or acute stage. There was a previous history of frequent sore throats in 26 cases, adenitis in 3 and otitis media in 3.

The complications following operation were as follows:

Cases	Cases
Transient fever	13 Broncho-pneumonia
Rise in pulse rate	9 (after measles)
Otitis media	7 Broncho-pneumonia
Haemorrhage	5 Infection of jaw
Measles	3 Retropharyngeal ab-
Cervical adenitis	2 secess
Mumps	2 Septic sore throat
	Antrum abscess

There were no complications after operation in 90 or 73.7%.

Analysis of the complications occurring after operation shows the following:

Temperature rise after operation:	Av. Highest temp.
Duration	Cases
1 day	4
2 "	4
3 "	4
7 "	1
Highest points	100.5-103
	100-102.5
	100.5-103
	102

In the case having fever for 7 days there had been a similar fever for one week preceding operation.

These cases were operated from the 6th to the 15th week of scarlet fever. The acute cases are not included.

Pulse rise.	Cases	Highest Rate
Duration		
1 day	1	168
2 "	2	125
3 "	3	130
4 "	2	130
2 wks.	1	130

Post-operative haemorrhage. Post-operative haemorrhage was moderate in two cases and slight in three, occurring 14, 16 and 23 hours after operation. It was not alarming and was readily controlled. These cases were operated in the 4th, 6th, 7th and 12th weeks of scarlet fever.

Operative haemorrhage was not abnormal.

Otitis Media. Otitis media occurred for the first time after operation in four cases as follows:—

- 4th day in one case lasting 5 weeks.
- 5th day in one case lasting 2 days—red drum without discharge.
- 13th day in one case lasting 9 days.
- 24th day in one case lasting 10 days.

Otitis media occurred following operation in cases which had had otitis media during the acute stage of scarlet fever as follows:

- 12th day, persisting one week.
- 10th day, persisting for one week in a case which had had otitis media at onset, persisting 6 weeks.
- 8th week after operation, persisting 2 weeks.

The patients developing otitis media for the first time after operation were operated on the 4th, 7th and 5th week and the third day respectively.

Broncho-pneumonia. One patient developed broncho-pneumonia 40 days after operation on the 5th day of measles. The lung was clear in 10 days.

One patient, age 1, who had been returned to hospital because of a contagious nasal discharge developed broncho-pneumonia 19 days after a favorable post-operative convalescence and died on the 31st day. These cases were operated on the 3rd day and 9th week of scarlet fever respectively.

Local Sepsis. One patient developed a septic process in throat and nose beginning 14 days after operation with swelling and redness of throat and nasal discharge for a period of one week. He was operated on the third day, when he had a severe septic throat with extensive membrane and tonsils nearly meeting in median line. He later developed measles and broncho-pneumonia.

One case operated in the 5th week developed adenitis on the 5th day with a small abscess opened on the 12th day with rapid recovery.

One case operated on in the 5th week had small glands in neck one week after operation for a few days.

A swelling of jaw developed in another case the day after operation, clearing in 2 weeks.

In one case which had been running an irregular temperature for one week before operation with slight glandular swelling, nasal discharge and swollen tonsils, a retropharyngeal abscess developed and was opened on the 6th day after tonsilleectomy.

One case developed nasal discharge at end of one week and later was operated for antrum. There was a history of frequent nasal discharge previous to scarlet fever.

Reinfection. One patient developed a typical scarlet fever 3 days after tonsilleectomy which had been done in the 6th week while the patient was still desquamating from the first attack. The temperature lasted 3 days, reaching 103.2, and there were no complications.

Nephritis. One patient was operated on the 3rd day of nephritis in the 4th week of scarlet fever. There was an increase of albumen on day of operation and an increase of blood cells for 5 days. The urine was normal in 4 weeks.

There was no oedema. The urine showed V. S. T. to T. of albumen with hyaline, granular, brown granular and epithelial casts, renal cells and red blood corpuscles and was smoky in color for a few days.

On examining the table on page 6 it is seen that complications occurred more frequently in cases operated late in convalescence than when operated earlier, although this may be due to differences in the cases. It does not indicate the supposedly great danger of tonsilleectomy early in the disease, however. It must be recalled that the cases in this group represent chiefly cases in which complications without operation particularly threatened.

Purpose of operation and results. Many of these cases were operated because of continued contagiousness as shown by aural or nasal discharge.

Aural Discharge. Thirty-four cases operated, all but 5 cleared within 6 weeks.

Ear discharge stopped in 4 days.	4 cases
Ear discharge stopped in 8 days.	11 cases
Ear discharge stopped in 10 days.	5 cases
Ear discharge stopped in 14 days.	3 cases
Ear discharge stopped in 4 wks.	5 cases
Ear discharge stopped in 6 wks.	1 case
No benefit	5 cases

Nasal Discharge. Thirty-nine cases were operated because of nasal discharge.

Nasal discharge ceased in 1 wk.	6 cases
Nasal discharge ceased in 2 wks.	18 cases
Nasal discharge ceased in 3 wks.	5 cases
Nasal discharge ceased in 4 wks.	2 cases
Nasal discharge ceased in 8 wks.	1 case
No benefit	7 cases

Three patients were operated because of cervical adenitis, with rapid subsidence of glands in all.

Others were operated because of peritonsillar abscess, frequent sore throats, obstruction, dyspnoea, difficult deglutition, poor general condition, persisting infection in tonsils or adenoids, etc.

In the acute stage of the disease tonsilleectomy was performed in 18 cases. In two cases complications occurred in convalescence.

In one case, No. 63068, age 4 years, there was a history of sore throat frequently and very many colds. There has been an abscess of the neck and the patient was a mouth breather. The tonsils were very large, nearly occluding fauces, and there was nasal obstruction. Operation on the 3rd day of scarlet fever. On the 9th day there was a nasal discharge, which continued for a long period. The antrum was opened several months later. In the other case, No. 62808, 3 years old, the patient was operated in the third day of scarlet fever, at which time there was a moderate septic throat with patches of membrane on each tonsil. Fourteen days after operation, fever, swelling of the throat, and

within a week, nasal discharge. Three weeks after operation aural infection occurred. By the end of the 4th week throat, nose and ears had cleared. On the 35th day measles developed, followed by pneumonia on the 5th day, and an

active otitis media. Within 10 days lungs and ears had cleared.

As tonsillectomy in the acute stage of scarlet fever is unusual, the detail of these cases is given in the accompanying table.

Reference number	Age	Day of disease operated	Condition	Course
60970	14	2nd	Frequent sore throats. Large red tonsils with marked crypts, some exudate on post pharynx and slight oedema of uvula. Mod. mild case. T. 100.	Temp. normal in two days. Throat healed in 10 days. No complications.
60792	5	6th	Marked swelling of tonsils, left to median line, right to $\frac{1}{2}$ cm. from median line.	Temp. normal in one day. No complications.
60862	9	3rd	Tonsils much enlarged, marked crypts with exudate. Mod. mild case. T. 100.5.	Temp. normal in 3 days. Throat healed in 3 wks. No complications.
65101	10	3rd	Right tonsil buried. Left tonsil mod. enlarged, exudate on surface. Mod. case. T. 101.5.	Temp. normal in 2 days. Throat healed in 3 wks. No complications.
65086	10	4th	Tonsils much enlarged. Thin membrane on surfaces. Glands at angle of jaw much enlarged. Tonsils exuded pus on pressure. T. 103.	Temp. normal in 24 hrs. Throat healed in 3 wks. No complications.
65130	2	3rd	Tonsils enlarged. Pus exuded on pressure. Very large adenoid mass.	Temp. normal in 3 days. Throat healed in 4 wks. No complications.
65387	6	4th	Tonsils markedly enlarged, exudate on each and on uvula. Mod. case with septic throat. T.	Temp. normal in one day. Throat healed in 11 days. No complications.
65817	4½	6th	Catches cold easily, mouth breather and is said to be mentally backward. Tonsils meet in median line. T. 100.5.	Temp. normal in 3 days. Throat healed in 2 wks. No complications.
66446	14	6th	Several attacks of tonsillitis. Tonsils mod. enlarged. Exudate in crypts. Moderate case. T. 102.	Temp. normal in one day. Throat healed in 2 wks. No complications.
60904	5	3rd	Tonsils large, ragged, marked crypts. T. 102.	Temp. normal in one day. Throat healed in 3 wks. No complications.
61748	19	5th	Tonsils moderately enlarged. Mild case. Temp. normal.	Temp. normal. Throat healed in 4 wks. No complications.
65104	6	2nd	Had had otitis media, and present illness began with carache and red drums. Tonsils mod. enlarged, covered with exudate.	Temp. normal in 2 days. Throat healed in 3½ wks. No complications.
63417	4	8th	Always had large tonsils, and has occasional sore throats. Tonsils large, meet in median line, some exudate. Breathing through mouth, which is noisy and somewhat difficult.	Throat healed in 2 wks. No complications.
65120	5	3rd	Recurrent tonsillitis. Tonsils large and almost meet in median line. Yellow exudate over surface.	Temp. normal in 2 days. Throat healed in one wk. No complications.
65626	7	7th	Frequent tonsillitis. Tonsils large with marked crypts. T. 103.	Temp. normal in 2 days. Throat healed in 2 wks. No complications.
66142	6	4th	Tonsils markedly enlarged. Almost meet in median line. Thin film of membrane over surfaces.	Temp. normal in 2 days. Throat healed in 12 days. No complications.
63068	4	3rd	Many colds and sore throats. Abscess of the neck. Mouth breather. Tonsils very large, nearly occlude throat, and covered with film of exudate. T. 100.8. Glands at angle of jaw.	Temp. normal in 3 days. Nasal discharge on 9th day continued thru convalescence. Rt. antrum opened 15th wk. No fever during convalescence.
62808	3	3rd	Tonsillitis 2½ years before. Tonsils much enlarged, almost meeting. Patchy membrane on left, slight on right. T. 102.8.	Temp. normal in 3 days. 14 days after operation throat red-fever. During next week swelling of

throat, nasal discharge, etc., with high fever. Third week aural discharge. Fourth week throat clear, aural and nasal discharge cease. 35 days after operation measles. 40 days after operation pneumonia, and again discharge from ears. 45 days after, lung clear and ears clear.

DIPHTHERIA.

In diphtheria, diphtheria carriers, septic sore throat, tonsillitis, chorea, etc., tonsillectomy has been performed 74 times during the past five years.

In the diphtheria carriers 39 cases were operated upon because of the carrier condition. Of these, 36, or 92.3%, were cured within four weeks; 32, or 82%, were well in two weeks.

Diph. free	Cases	Per cent.
Within 1 week	16	41
Within 2 weeks	16	41
Within 3 weeks	2	5.1
Within 4 weeks	2	5.1

Three patients were not benefited by operation. All proved to be non-virulent and were discharged.

The details of these cases is given in the accompanying table.

These cases were selected from the diphtheria carriers as being favorable for operation by culturing various regions as each tonsil, pharyngeal wall, and nostrils. The tonsillar carriers were operated on. Occasionally other than tonsillar carriers were included.

DIPHTHERIA CARRIERS.

Case	Reference Number	Age	Week of Disease Operated	Cultures Before Operation	Cultures After Operation
1	61323	29	8th	21 consec. cultures, 10 positive.	Immediately after operation 7 consec. negative cultures.
2	61405	8	4th	7 consec. pos. cult.	One wk. after operation, 7 consec. neg. cultures.
3	60938	5	?	Several positive.	All cult. neg. for a month.
4	60853	4½	4th	11 consec pos. cult.	Next 23 cult., 5 neg. One month later 6 consec. neg. cultures.
5	61559	9	7th	35 cult. 31 positive.	After operation, 10 cult., 8 neg. All neg. after 10 days.
6	54155	25	2nd	13 cult. 8 positive.	No effect. Non-virulent, 52 cult., 36 neg.
7	64664	21	7th	24 cult. 11 positive.	One wk. after operation, 12 cult., 11 neg.
8	64556	8	11th	18 cult. 16 positive.	11 cult., 7 neg.; 12 days after operation, 7 consec. neg. cult.
9	65128	7	6th	19 cult. 10 positive.	6 days after operation, 6 consec. neg. cult.
10	65187	5	4th	11 cult. 10 positive.	One week after, 6 cult., 5 neg.
11	65328	7	5th	15 cult. 5 positive.	One wk. after, 7 consec. neg.
12	65316	11	7th	25 cult. 17 positive.	One wk. after, 14 cult., 13 neg. All neg. after 11 days.
13	65522	4	4th	13 cult. 9 positive.	15 cult. 13 neg.
14	65501	3½	7th	14 cult. 10 positive.	Nine days after, 6 consec. neg. cultures.
15	65640	19	3rd	0 cult. 8 positive.	Nine days after, 6 consec. neg. cultures.
16	65828	24	3rd	12 cult. 11 positive.	Ten days after, 7 consec. neg.
17	65889	5	1th	15 cult. 13 positive.	Eight days after, 12 cult., 11 neg.
18	65920	5	8th	23 cult. 18 positive.	34 cult., 20 pos. No benefit, nonvirulent.
19	66108	2½	5th	17 cult. 16 positive.	Five days after, 5 consec. neg.

Case	Reference Number	Age	Week of Disease Operated	Cultures Before Operation	Cultures After Operation
20	61101	6	10th	35 cult. 18 positive.	Ten days after, 9 cult., 8 neg.
21	66478	3	5th	16 cult. 15 positive.	Six days after, 7 consec. neg.
22	66451	10½	3rd	18 cult. 14 positive.	After op., 20 cult., 11 neg.; 27 days after, 7 consec. neg.
23	61213	17	9th	50 cult. 34 positive.	2 days after, 7 cult., 6 neg.
24	61160	4	3rd	13 cult. 7 positive.	3 days after, 17 cult., 9 neg.; all neg. in 3 weeks.
25	60724	26	3rd	7 cult. 6 positive.	2 days after, 13 cult., 8 neg.; after 10 days, all neg.
26	60464	26	4th	21 cult. 17 positive.	3 days after, 10 cult., 6 neg.; all neg. after 9 days.
27	62003	25	4th	17 cult. 14 positive.	2 days after, 3 consec. neg.
28	62519	20	3rd	9 cult. 7 positive.	2 days after, 11 cult., 8 neg.; all neg. after 7 days.
29	63528	14	8th	10 cult. 8 positive.	10 days after, 12 cult., 9 neg.; after 2 weeks all neg.
30	63907	22	2nd	8 cult. 4 positive.	One week after, all neg.
31	63736	2	8th	20 cult. 16 positive	One week after, 4 cult., 3 neg.
32	63707	7	4th	14 cult. 7 positive.	Five days after, 5 consec. neg.
33	63786	4	9th	30 cult. 21 positive.	Seven days after, 26 cult., 20 neg. All neg. after 2 weeks.
34	63686	4	6th	15 cult. 14 positive.	Six cult., all pos., non-virulent.
35	63620	22	3rd	5 cult. All positive.	One week after, 10 cult., 8 neg. All neg. after 8 days.
36	60238	7	7th	Cult. positive for one month.	One week after op., neg. cult. for 13 consec. days.
37	59915	?	3rd	7 cult. 2 positive.	Three days after, neg. for 9 consec. days.
38	58902	21	4th	8 cult. 7 positive.	One week after, cult. neg. for 6 consec. days.
39	61440	12	4th	19 cult. 14 positive.	Three days after op., 6 consec. neg. cult.

The complications in this group were as follows:—

Fever transient	8 cases
Rise in pulse	4 "
Mumps	1 case
Erysipelas of face	1 "
Diphtheria of wound (?)	1 "
Hemorrhage	1 "
Bronchopneumonia	1 "
Cervical adenitis	1 "

The bronchopneumonia occurred in a two year old child operated in the eighth week after a normal convalescence; pneumonia developed on the tenth day and was fatal in one day. During the third week of convalescence, one patient had had a cervical adenitis and abscess.

One case had tuberculosis of tonsils and adenoids.

The operative procedures were nearly uniform

in these cases. Light ether anaesthesia with the open method was used. The sitting posture was used nearly exclusively. The dissection of the tonsils was done with Monahan's blunt dissector and snare, chiefly, a method which produces but little trauma and gives excellent results.

I feel that the technique is especially important in these cases, that the ether should be light, the trauma as little as possible, and the operation as short as possible.

CONCLUSIONS.

1. Tonsillectomy and adenoidectomy are valuable means of shortening the contagiousness of scarlet fever and diphtheria in suitable cases.

2. There is reason to believe that early operation in scarlet fever tends to reduce the danger of complications.

3. Operative dangers are not great; haemorrhage is not more marked than in other conditions.

4. Local infection, although not excluded by operation, is less common than usually occurs in non-operative cases.

5. Bronchopneumonia occurred three times in 196 cases, once being after measles, but in no case did symptoms appear earlier than ten days after operation.

DISCUSSION.

Dr. C. R. C. BORDEN, Brookline: According to his usual wont, Dr. Place has been very modest concerning the outcome of his investigations. Did time but permit, it would give me pleasure to tell you of a great many brilliant results which have been obtained in the South Department during his administration.

As regards the subject under discussion, he has left very little for me to add, since my experience in the removal of tonsils during scarlet fever has in recent years been comparatively slight. Doubtless I performed some of the operations which he mentioned as not being particularly successful, but that was some time ago, before the operation had reached its present state of development.

When I became connected with the Aural Department of the Boston City Hospital, chronic discharge from the middle ear was the bane of our existence. We had dozens of such cases every day, whereas at the present time there are relatively few.

The wholesale removal of adenoids and tonsils in hospitals and in private practice is the most prominent factor in the diminishing number of cases of otitis media.

I was delighted to hear Dr. Place say that a number of tonsils operated during scarlet fever cured acute otitis media. If every case of aural discharge persisting more than two or three weeks should have the tonsils and adenoids removed, deafness and mastoiditis in the future would be relatively rare. Even at the present time the patients coming to specialists' offices for relief from deafness are gradually becoming fewer and fewer, and in the large cities there will probably be comparatively little of it in the future.

Another point brought out by Doctor Place I wish particularly to emphasize, namely, the recognition and diagnosis of profuse nasal discharge. Such a discharge as that often seen in scarlet fever is frequently the beginning of nasal sinus disease, which is so troublesome later in life. As nasal sinus disease is much more common than the profession at large

realizes, it is our duty to bring about a better understanding of the significance of its far-reaching influence. It is a powerful factor, in many cases of asthma, cough, arthritis, indigestion, and probably heart and kidney infections of various degrees and intensity.

Inflamed tonsils and adenoids are often the primary source of infection of the nasal sinuses. Consequently the removal of infected lymphoid tissue will bring about marked improvement throughout the mucous surfaces of the nose.

Once or twice a year, I am called upon to see some desperately sick child in which no cause can be found for prostration and high temperature. I should like to mention one case seen in consultation with Dr. Place and Dr. Hastings in the Brookline Contagious Hospital, since it illustrates very well three particular points which I wish to emphasize. A young girl seven years old was admitted to the hospital a few months ago with a very light case of scarlet fever. Several weeks later she became very ill and developed a high temperature, but physical examination by Dr. Place and Dr. Hastings failed to discover any particular reason for her condition. I was then invited to see the case, and found nothing except a shiny, pink ear-drum. There was little or no bulging of the drum; there was a partial light reflex present; there was no swelling of the canal wall and no tenderness or swelling over the mastoid. Incision of the drum was not followed by discharge or by any cessation of the symptoms. The child continued to be very ill; finally, because nothing definite elsewhere could be determined, Dr. Place and Dr. Hastings allowed me to open the mastoid, which, in the absence of any other symptoms, I was convinced was the real cause of her troubles. When the mastoid cortex was exposed, the first blow from the hammer and the chisel uncovered a cavity in the mastoid which occupied its whole interior. When the rest of the bone was taken from the cortex, the mastoid cavity was found to be very red and dry. There was practically no bleeding, and it required very little operating to enter the mastoid antrum and find this direct communication to the middle ear. Some bleeding occurred at this point, but very little. There were one or two very suspicious cells behind the jugular vein, which was freely exposed. The mastoid had all the appearance of being tubercular, but unfortunately no cultures were taken and no pieces of bone were saved for examination.

Shortly after the operation the temperature fell to normal and never went up again except once temporarily, which was probably due to some disturbance in the digestive tract. The child recovered slowly, because of her extreme prostration, but finally left the hospital in good condition. As previously stated, this case emphasizes three points. First, the parents took the child to their family doctor some months before and asked if it were necessary to have the tonsils and adenoids removed. The doctor advised against it, and told them to wait until she was older. Doubtless, had her tonsils and adenoids been removed at that time, her serious illness would not have occurred. Secondly, there were few symptoms pointing to mastoiditis; but had we waited for the cardinal symptoms as given by text-books and lectures on the subject, I am sure this child would have died. Thirdly, I am positive that this particular case would have become one of chronic mastoiditis were it not for the effective results obtained from a two and one-half per cent. solution of mercurochrome. In all my experience with mastoiditis, coincident with scarlet fever, I have never seen a case better suited to become chronic than this was, because of the peculiar tubercular-like appearance of the bone. After the first dressing was taken down, this wound was filled with the mercurochrome solution, which was allowed to remain in place for half an hour, five times a day,

Later, the number of applications was decreased. The wound healed rapidly and cleanly: today it is healed, and the hearing is normal. Not only did the wound heal, but the stitches used to draw the skin together at the top and bottom of the wound held in place, without infection or without cutting through, for more than seven days. This is the only case in my experience where I have been able to make sutures hold in scarlet fever. In every other case they have cut through, or become infected within three days.

When the adenoids were removed in this case the greater part of the lymphoid mass was removed with a Gottstein curette; but when the finger was inserted behind the palate, the sides of the pharynx and the spaces round the eustachian tube were so filled with remaining adenoid tissue that the finger experienced the same sensation as if it had been inserted into a tub of soft butter. The tissue, of course, was curetted away by the finger nail.

Primary mastoiditis practically never occurs. In a large series of autopsies in the Contagious Department of the Boston City Hospital, if I remember rightly, but one instance occurred in which the question of primary mastoiditis was raised. In every other case it was secondary to the ear, nose, or throat.

Such being the case, it becomes our duty in every case of a scarlet-fever middle-ear complication to anticipate the more serious developments of mastoiditis, and to remove infections in the nose or throat before the middle-ear condition has become sufficient to be a serious menace to the patient's life or to the future of his hearing.

Dr. Place, of the Boston City Hospital, Dr. Hastings, of the Brookline Contagious Hospital, and Dr. Morse of the Somerville Contagious Hospital, realize this to its full extent, and are constantly watching their patients lest they develop chronic middle-ears, mastoiditis, jugular thrombosis, meningitis, and so forth.

Dr. Place's paper today will, I am sure, spread broadcast this most important subject, and I feel confident it will do much to banish the fear held by so many physicians and specialists—viz., that scarlet fever, in the present or in the past, does not contraindicate the removal of infected tonsils and adenoids.

Dr. E. H. Place, Boston (closing): I might speak about the case that Dr. Borden spoke of. I quite agree that the operation did a great deal of good. I don't know what would have happened if he had not done it. I saw the girl after he did and found nothing to account for the temperature except the ear. He opened the ear without getting pus, and she showed no mastoid symptoms at all. The only local infection in that case was a mastoid which was apparently primary. The only cases of mastoiditis I have seen which were primary were tuberculous. One of my cases had five operations on the mastoid and recovered, but I think she has pulmonary tuberculosis now.

SPECIAL NOTICE

The Boston Medical Library, permanent headquarters of The Massachusetts Medical Society, 8 The Fenway, Boston, desires contributions of books, periodicals, pamphlets, medical photographs and autographs, and whatever relates to medicine. Do not throw away or sell for junk anything of a medical or scientific nature, no matter how worthless it may seem, without first giving the Library the privilege of examination.

Original Article.

AN INVESTIGATION OF THE RELIABILITY OF LABORATORY TESTS AND A DISCUSSION OF TECHNIQUE OF LABORATORIES IN AND NEAR BOSTON.

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FOREWORD BY DR. WM. C. WOODWARD, FORMERLY
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IN May, 1919, the writer was impressed with the importance of determining the accuracy of diagnostic and other work done in the bacteriological laboratories in and about Boston. He had no reason to believe that conditions here were different from conditions in other places, but Metropolitan Boston is made up of so many independent cities and towns and contains so many clinical laboratories, public and private, in which bacteriological work is done, that the situation obtruded itself more forcibly, probably, than it would have done in other places. Action was taken toward the desired end by arranging for cooperation between the responsible directors of two bacteriological laboratories of unquestionable standing, with the hope that if cooperation between these two could be effected, then cooperation on the broader scale would follow. The plan was unsuccessful, however, the work consuming too large a part of the time of the directors of the laboratories participating in it.

Foiled in efforts along the line named, the writer appealed for aid to Professor William T. Sedgwick, then professor of biology and public health at the Massachusetts Institute of Technology. Professor Sedgwick cheerfully consented to direct the inquiry and to furnish the necessary technical assistance, but could not provide the money. An appeal was made to the Committee of the Permanent Charity Fund, Inc., who, upon being convinced of the importance of the objects to be obtained and of the fact that money was not available from other sources, made the necessary grant. The reasons submitted to the Committee of the Permanent Charity Fund in the appeal that was made for assistance seemed to represent a complete justification for the expenditure and were as follows:

"In the interest of the public the Health Department of the City of Boston, through its bacteriological laboratory, is continuously making examinations to determine whether persons from whom specimens are submitted by their attending physicians are or are not suffering from a communicable disease, to determine the nature and extent of the bacteriological contamination of milk, etc.

"It is manifestly of vital importance to the community and to the patient that the results of such examinations as are made to determine the presence or absence of communicable diseases be as nearly accurate as human care, knowledge, and skill can make them. To report that a smear from a case that a physician suspects of being a case of gonorrhoea shows that the case is that disease may create suspicions that no subsequent discovery of error and no amount of subsequent explaining can remove, and may wreck the happiness of a family. To report that a similar specimen shows no evidence of gonorrhoea when the question of marriage hangs on the decision may, if an error be made, ruin the health of the young wife and bring blindness to the offspring. Similarly the welfare of the individual and the safety of the community are inextricably bound up in the reports of the laboratory as to whether given cases are or are not syphilis, or tuberculosis, or diphtheria, or typhoid fever, or cerebro-spinal fever, or malarial fever, and so on.

"In the case of examinations made in connection with the efforts of the department to insure the wholesomeness of the milk supply, the safety of swimming pools, and so on, errors may lead to a false sense of security on the one hand, with consequent disaster, and on the other hand may lead to unnecessary expenditure of money, energy and time in efforts to right evils that do not exist."

The history and results of the investigation are fully set forth in the following report. Technical recommendations for the standardization and control of laboratory service, which are chiefly of interest to those engaged in laboratory work, are presented in a separate article for those interested in the purely laboratory aspects of the situation. To the administrative health officer and, above all, to the people, the matter of primary concern is not so much the standardization of procedure as the establishment of some method of supervision and control whereby laboratory errors and misinterpretation of laboratory reports will be reduced to a minimum.

It would seem clear that if physicians, pharmacists, dentists, veterinarians, and even chiropractors are required to satisfy the state of their fitness to follow their chosen callings before they are permitted to do so, then that persons who venture to presume that they are capable of doing clinical laboratory work should be tested in like manner before they begin to hold themselves out to the public, either in governmental or private laboratories, as qualified to do so; and some assurance should be required in every case that the laboratory equipment possessed by the would-be laboratory worker is adequate for the purposes for which he uses it. Possibly some such method of control, by requiring a license as a condition precedent to engaging in laboratory work as a means of livelihood, might be tolerated, for the present at least, inasmuch as that is the method of control applicable to the

other callings named above. It would seem better even in such cases, however, and it would certainly seem necessary with respect to all governmental laboratories, that there be some adequate system of measuring the accuracy of their work from time to time and requiring that work to be up to standard. A peddler must produce scales of the required fineness before he can begin crying his wares, but, furthermore, he must have those scales tested from time to time to see that they retain their accuracy. So the public is entitled to demand that workers—at least in government laboratories—not only are qualified when they enter upon laboratory service but that they remain qualified during their entire period of service and that they do not fail through carelessness or rush of work to exercise their qualifications for the safeguarding of patrons of their laboratories.

To the end last named, there should certainly be established some system of measuring—of auditing, if you will—the accuracy of the reports issued from government laboratories. Such a system of checking up the work of these laboratories would not be difficult, provided only that money be provided for the employment of competent men for such work, with authority to use such measures as they saw fit for determining the accuracy of the results of any laboratory. Such work may well be entrusted to state medical licensing boards, or to state health authorities, but in the latter case, provision would have to be made for determining by some independent agency the accuracy of the work of the laboratories maintained by the state health authorities, which are certainly no more immune from error than are the laboratories in the municipal health departments. Possibly, after all, the establishment of an independent board for such supervisory work might best solve the problem.

Certainly, no fair-minded laboratory worker could object to such a system of supervision as is suggested above. It is just such a system of supervision as the most responsible financial interests of the country are by law subjected to, and such supervision as the financial departments of all large corporations expect from their stockholders and directors. If the work of the laboratory is above criticism, then an inquiry into it, such as is now proposed, will do the laboratory no harm and will tend to reassure the public and, particularly, the medical profession with respect to its work. If the work of the laboratory can be improved, then such supervision should show the way. Clearly it would be the part of wisdom on the part of state and municipal governments to provide such money as may be necessary, and to grant such authority as may be necessary, for the effective supervision and control of the laboratories established and maintained by them for the benefit of their citizens.

I cannot close without recording my appreciation of the valuable service rendered by Pro-

fessor W. T. Sedgwick, Professor S. C. Prescott, Dr. L. S. Medalia, and Dr. F. H. Slack, and of the spirit of willing coöperation manifested by the several laboratories that were asked to coöperate in the investigation. I am under deep obligation, too, to the Committee of the Permanent Charity Fund, Incorporated, for the financial assistance rendered by it, without which the investigation would have been impossible. The investigation has, I feel, been well worth while, and it should point a way toward better laboratory organization and administration not only in Boston but wherever public health laboratories for the service of the community are maintained.

A COMPARISON OF REPORTS FROM SEVERAL DIAGNOSTIC LABORATORIES ON FOUR COMMON TESTS: DIPHTHERIA, TUBERCULOSIS, TYPHOID FEVER, GONORRHOEA.

PART I.

This report is a result of the initiative of Dr. Wm. C. Woodward, formerly Commissioner of Health for the City of Boston, through whom the Committee of the Permanent Charity Fund, Incorporated, became responsible for a study of the technique of various laboratories in or near Boston, a comparison of the work done, through the submitting of identical samples and an effort to establish uniform procedure.

The late Prof. W. T. Sedgwick of the Massachusetts Institute of Technology was asked by Dr. Woodward to oversee this study and to assign workers from the Biology Department to prosecute it under his supervision. Under his direction Professor S. C. Prescott sent a circular letter to the various laboratories in March, 1920, and received a cordial response to his request for coöperation.

About June 1, 1920, Dr. L. S. Medalia took charge of the investigation and for several months devoted much of his time to a visitation of the laboratories and a study of the methods and technique of each.

On his request typewritten copies of the technique in use were submitted from the Boston Health Department laboratory, the State Health Department diagnostic laboratory, the State Wassermann laboratory and from the Board of Health laboratories in Brookline, Cambridge and Somerville.

Dr. Medalia drew up charts comparing the technique in use in these and other laboratories for the diagnosis of diphtheria, tuberculosis and typhoid fever. He also called several meetings of laboratory directors for a discussion of the technique used in these tests.

In May, 1921, owing to the pressure of other work, Dr. Medalia felt obliged to drop this investigation, and the writer was asked to continue it.

Following the programme outlined for the work, this was done by submitting various series

of specimens to the laboratories for diagnosis, a comparison of the reports and repeated conferences of the workers for discussion of technique. As an outcome of the discussion a code of minimum standards has been accepted.

The writer acknowledges with appreciation the hearty coöperation of the following laboratories in carrying out these tests, including, besides those mentioned in this paper, Wassermann tests and examination of milk: Boston Biochemical Laboratories, Boston City Hospital Pathological Laboratory, Boston Dispensary Laboratories, Boston Health Department Bacteriological Laboratory, Boston Health Department Bureau of Milk Inspection, Brookline Health Department Laboratories, Brookline Health Department Laboratory, Cambridge Health Department Laboratory, Homeopathic Hospital Pathological Laboratory, Massachusetts General Hospital Pathological Laboratory, Massachusetts State Department of Health Bacteriological Laboratory, Massachusetts State Department of Health Wassermann Laboratory, Newton Health Department Laboratory, Newton Hospital Laboratory, Peter Bent Brigham Hospital Pathological Laboratory, Wellesley Health Department Laboratory.

DIPHTHERIA.

Through the courtesy of Dr. E. H. Place of the Boston City Hospital, South Department, the first series of diphtheria cultures was taken from patients and attendants there. Ten cultures were taken. The swabs in each case were then rubbed thoroughly over the surface of as many tubes of blood serum media as there were laboratories taking part, and to make sure of a thorough inoculation the process was repeated. The last serum in each case, which presumably received the least material, went to Laboratory No. 7. All the serums were delivered to the various laboratories on the same day.

The results of this first series of tests were rather disappointing, evidently where the bacilli were few, as in Nos. 1 and 3, they were either overgrown or overlooked in over 50 per cent. of the cultures.

Brief histories of these ten cases follow:

CASE NO. 1. No. 64724. Age five years. Admitted April 15, 1921. *Diagnosis:* Clinical nasal diphtheria. *P. E.:* Bilateral mucopurulent discharge from nose with crusting. No membrane seen. Positive culture from nose and throat at entrance. *Course:* Received antitoxin at entrance. Uneventful course till May 21, when adenoids were removed. Throughout convalescence positive cultures were obtained until June 10, when gentian treatment was used for one week and then omitted for one week, subsequent to which all cultures from nose and throat were negative. Virulence test not done. *Diagnosis:* Nasal diphtheria.

DIPHTHERIA TESTS—TABLE I.

CULTURES TAKEN MAY 11, 1921.

Lab.	Specimens.									
	1	2	3	4	5	6	7	8	9	10
1	—	—	—	—	+	—	+	+	+	—
2	—	—	—	c*	+	+	—	+	+	—
3	+	—	—	—	+	+	—	+	+	—
4	—	—	—	c	+	+	Susp.	+	+	—
5	—	—	—	c	+	—	—	—	+	+
6	+	—	—	+Few	+	+Few	+	+	+	+
7	—Susp.	—	+Few	c	+	+	+	+	+	—
8	—?	—	—?	c	+	+	+	—?	+	—
9	—??	—	—?	c	—?	—?	+	—	+++	—
10	—?	—	—?	c	+	+	+	—?	+	—
11	+	—	+	—	+	+	+	+	+	—
12	—	—	—	—	+	—	+	+	+	—

*c=contaminated.

CASE No. 2. No. 64755. Age six years. Admitted May 11, 1921. *Diagnosis:* Typical mild faucial diphtheria. Positive cultures from the nose and throat. Received antitoxin at entrance. *Course:* Uneventful convalescence. Was discharged well at the end of three weeks. Discharge cultures all negative. *Diagnosis:* Faucial diphtheria.

CASE No. 3. No. 64734. Age eight years. Admitted April 18, 1921. *Diagnosis:* Typical clinical faucial diphtheria, moderate. Positive culture from throat. Received antitoxin at entrance. *Course:* Uneventful convalescence, with discharge in twenty-four days. All discharge cultures negative. *Diagnosis:* Faucial diphtheria.

CASE No. 4. No. 64859. Age six years. Admitted May 7, 1921. *Diagnosis:* Faucial diphtheria. Severe toxæmia. Entrance cultures positive. Forty thousand units antitoxin given at entrance intravenously. History not obtained. Duration of illness not known. *Course:* There was considerable difficulty in breathing due to oro-pharyngeal obstruction, which was relieved by passing a nasal tube. There was a slight febrile disturbance due to antitoxin, with temperature returning to normal in twelve hours. Death followed on fifth day in hospital. *Diagnosis:* Faucial diphtheria.

CASE No. 5. No. 64873. Age twenty-one years. Admitted May 10, 1921. *Diagnosis:* Mild faucial diphtheria. Positive culture from throat. Received antitoxin at entrance. *Course:* Uneventful. Discharged in eighteen days. All release cultures negative.

CASE No. 6. No. 64688. Age seven years. Admitted April 11, 1921. *Diagnosis:* Mild nasal diphtheria? *Course:* No membrane in nose. Entrance cultures negative three successive days from nose and throat separately. Antitoxin given at entrance. Uneventful course till placed on release cultures April 26. From 26th of April to 4th of May all release cultures were negative, but patient did not go home.

From that date on, positive cultures were noted almost constantly. From May 15 to 23 gentian treatment was given. From May 28 cultures were again positive persistently from the nose and occasionally from the throat. Adenoidectomy June 3. Cultures from June 8 to 15 positive from nose and throat. Virulence test proved organism was non-virulent. *Discharge:* Patient discharged well July 16, 1921. *Diagnosis:* Nasal diphtheria.

CASE No. 7. No. 64435. Age eight years. Admitted March 4, 1921. *Diagnosis:* Mild faucial diphtheria. Positive culture from throat at entrance. Antitoxin given. *Course:* Uneventful save for otitis media. Release cultures from nose, throat and ears were negative March 17 to 21 and patient was discharged March 22. After discharge one positive culture from nose and throat returned. Patient was readmitted March 24, No. 64556, with positive culture from the nose. No antitoxin given, no Schick done. Uneventful course save for almost continuous positive cultures. Gentian treatment in April followed by positive cultures again. Regional cultures showed nose alone involved. June 3 tonsils and adenoids removed; following day had a moderately bad post-nasal hemorrhage. Cultures resumed June 10; positive till the 15th; negative through the 21st. Discharged 22d of June well. *Diagnosis:* Faucial diphtheria, tonsils and adenoids.

CASE No. 8. No. 64847. Age twelve years. Admitted May 6, 1921. *Diagnosis:* Severe faucial diphtheria. *P. E.* Patient admitted with severe faucial diphtheria with oedema of soft palate and considerable membrane. Antitoxin given at entrance. *Course:* Cultures from throat and nose, suspicious for several days, became definitely positive fourth day after entrance. Course uncomplicated save for slight evidence of kidney inflammation. Definite palatal paralysis, also knee jerks. Release cultures begun June 24 were all negative. Discharged well June 30, 1921. *Diagnosis:* Faucial diphtheria.

CASE No. 9. No. 64664. Age twenty-one years. Admitted May 9, 1921. *Diagnosis:* Streptococcus sore throat. Patient admitted with streptococcus sore throat of moderate severity. Cultures from nose and throat separately negative. Received antitoxin at entrance. *Course:* Moderate serum reaction. Out of bed April 29. Uneventful course save for occasional positive cultures among discharge cultures from April 23 to May 14, when the regional cultures showed tonsils and posterior pharynx alone involved. Then came T. and A. May 21, with resumption of cultures May 28. From May 28 to June 8 all cultures for release except the one on June 1 were negative. Patient discharged well June 9. *Diagnosis:* Streptococcus sore throat. Tonsils and adenoids removed. Bacteriological diphtheria.

CASE No. 10. No. 64855. Age four years. Admitted May 7, 1921. *Diagnosis:* Measles. *Course:* Entrance culture from nose positive. No antitoxin given. Schick negative. Uneventful convalescence. Release cultures from May 9 to 17 all negative. *Discharge:* Patient discharged well May 15, 1921. *Diagnosis:* Measles.

As indicated in the histories, many of these were release cultures, and on this account more difficult for examination. Most of the errors consisted in passing as negative cultures containing but few bacilli. Laboratory No. 5 reports a positive result on culture 10, which all others report negative. Laboratory No. 9 seems over-cautious.

In preparing the material for the second series of diphtheria tests the duplicate smears were made in each case from a single culture, the growth having been first emulsified in salt solution. These smears, dried on glass slides, were submitted to the laboratories, each of which was allowed to stain the specimens in its own way.

DIPHtheria TESTS—TABLE II.

Lab.	Specimens.				
	1	2	3	4	5
1	+	—	—	—	?
2	+	—	—	—	—
3	—	—	—	—	+
4	+	—	—	—	+
5	—?	—	—	—	+
6	+	—	—	—	?+
7	+	—	—	—	+
8	+	—	—	—	?
9	+ Few	—	—	—	+
10	No answer received				
11	+	—	—	—	—

Cultures Nos. 1 and 5 were positive, the others negative. All agree on the negatives, and, again, the chief error is in reporting as negative smears containing diphtheria bacilli.

It is interesting to note that while each laboratory reported one or the other of these cultures

1 and 5, as positive, only three give a positive report on both.

One laboratory did not answer at all, and a troublesome feature in all these tests was the slow progress because of delay in sending reports.

The writer realizes that these tests on diphtheria are too few for a basis for comment, and is planning another series of tests in which the same stained smears will be submitted to all laboratories, thus eliminating discrepancies due to varying cultural conditions or to methods of preparation of the specimens.

It seems evident that positive cultures, containing few bacilli, are apt to be reported negative, especially by the smaller laboratories. Larger laboratories have many advantages which tend to give them greater accuracy. In the first place, the handling of numerous cultures daily keeps the technician in good training, and, secondly, the larger staff allows for the examination of each specimen by at least two observers.

TUBERCULOSIS.

Only one series of specimens has been submitted, and these were smeared and fixed on glass slides, each laboratory doing its own staining.

SPTUM EXAMINATION FOR T.B.

Lab.	1	2	3	4
1	+	—	—	+
2	+	—	—	+
3	+	—	—	+
4	+	—	—	+
5	+	—	—	+
6	+	—	—	+
7	+	—	—	+
8	+	—	—	—
9	+	—	—	+ Few
10	Did not answer			
11	+	—	—	+

Only one mistake is noted here: a case of overlooking the bacilli when they are few. This is the chief error to be expected in this examination.

TYPHOID FEVER.

For this test specimens of dried blood were submitted, the positives from a guinea pig which had been immunized, the negatives from a non-immune pig. Specimens 1, 2 and 5 were negative.

The specimens were submitted in July.

WIDAL TESTS.

Lab.	1	2	3	4	5	
1	—	—	+	+	—	Reported Sept. 8
2	—	—	+	+	—	Reported in July
3	—	—?	+	+	—	Reported in July
4	—	—	+	+	—	Reported in July
5	—	—	+	+	—	Reported in July
6	+	—	+	+	—	Reported Sept. 17
7	No report received					

The principal criticism here is in the delay of the reports. One negative specimen was reported as positive by Laboratory No. 6.

GONORRHOEA.

Four smears were submitted to each laboratory, being prepared through the kindness of Dr. Hinton of the Boston Dispensary from four patients, two with positive and two with negative discharges.

GONORRHOEA TESTS.

Lab.	1	2	3	4
1	—	—	+	+
2	—	—	—	+
3	—	—	+	+
4	—	—	+	+
5	—	—	+	+
6	—	+	+	+
7	—	—	+	+
8	—	—	+	+
9	—	—	+	+
10	—	—	+	+
11	—	?	+	+
12	—	—	+	+

One of the negative smears was reported positive by one laboratory and suspicious by another. One great difficulty in gonorrhoea diagnosis is with the proper control of the gram stain. Unless considerable care is used one may decolorize too much, causing gram-positive organisms to appear as gram-negative; or one may decolorize too little, causing gram-negative organisms to appear as gram-positive.

Since one laboratory reported this difficulty overcome by use of Burke's staining method, the formula for this method will, at the request of the other laboratories, be included in the report on technique.

Of these four examinations diphtheria is undoubtedly the most difficult, and the results in the other three series (tuberculosis, typhoid fever and gonorrhoea) are fairly uniform. With diphtheria, however, the discrepancies are very noticeable, and this in spite of the fact that the various workers knew their results were to be compared with those obtained by others.

Since all the diphtheria cultures, with the exception of sets for two laboratories*, were planted on tubes from the same batch of media, and all were delivered to the laboratories within a few hours, it would seem that the cultures should be uniform, yet in one case reported positive by the writer a smear from a duplicate culture was brought to him which showed no diphtheria bacilli.

Probably cultures for diagnosis would have given better results, since the bacilli are apt to be more numerous and of better morphology.

One cannot but feel, however, that diphtheria bacilli have been overlooked in some of these cultures and that some of the technicians need toning up on this examination.

Possibly a frequent comparison of duplicate cultures with other laboratories, or occasional

*One of these laboratories preferred to re-inoculate from the cultures submitted to its own media; the other made its own cultures from the swabs.

revision of diphtheria slides, staining methods and diagnoses by an expert diagnostician, would be of advantage in establishing a higher precision in diphtheria examinations.

(To be continued.)

Current Literature Department.

ABSTRACTORS.

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TREATMENT OF HUMAN HOOKWORM WITH CARBON TETRACHLORIDE.

NICHOLLS AND HAMPTON (*Brit. Med. Jour.*, July 1, 1922) present the following conclusions as a result of their investigations of treatment of human hookworm infection with carbon tetrachloride:

1. Carbon tetrachloride is an efficient anthelmintic remedy for hookworms.

2. The drug may be administered safely in doses of 10 to 20 minims to children of 3 and 4 years of age, even when they are seriously ill from various causes.

3. It aids the expulsion of *Ascaris lumbricoides* if it is followed by a purgative, but it is not as effective as chenopodium in killing this worm.

4. The drug does not seriously deteriorate on keeping. Many children were given doses of carbon tetrachloride which had been stored in the laboratory for three years.

5. It is more valuable than a chenopodium for campaigns against hookworm disease because—

(a) Patients do not object to its taste.

(b) It is not necessary to precede or follow the administration of it by a purge.

(c) It is more efficient than chenopodium and has not the depressing effects of that drug.

(d) It is much cheaper than any other drug that has been used.

(e) It can be prepared in a high degree of purity, and a chemically pure preparation should always be used.

(f) The person who is being treated can do his usual day's work.

Children when one year of age may be given 10 minims of carbon tetrachloride with safety, and this dose should be increased by 2 minims for each year of apparent age. Thus a child of 10 would receive 28 minims, a youth of 16, 40 minims (2½ c.cm.), and an adult dose should be from 50 to 80 minims (3 to 5 c.cm.), according to the size of the patient.

Finally, chenopodium is soluble in carbon tetrachloride, and a mixture of one part of the former in four of the latter should prove to be efficient for the expulsion of *Ascaris lumbricoides*.

MALIGNANT DISEASE AND LEUKEMIA.

YOUNG (*Edin. Med. Jour.*, June, 1922) presents the results of a further investigation into the etiology of malignant disease and leukemia, including an account of lymphoma and lympho-sarcoma experimentally produced in the mouse.

He believes these investigations provide data in support of the contention that the leukaemic phenomena and lympho-sarcoma are related to one another in regard to their ultimate etiology, and that these states are, on etiological grounds, related to ordinary malignant disease.

[J. B. H.]

JEJUNAL ULCER WITHOUT PREVIOUS GASTRO-ENTEROSTOMY.

RICHARDSON (*Surg., Gyn. and Obstet.*, July, 1922) presents a very thorough and interesting paper on this rather obscure subject. He reports one personal case, one from the records of the Massachusetts General Hospital, and nine cases reported from the literature. He then discusses the probable causes of primary ulcer of the jejunum and states that no sharp line can be drawn between these simple ulcers of the jejunum, which somewhat resemble peptic ulcer of the stomach and duodenum, and similar ulcers occurring lower in the small intestine. Whether these represent a clinical entity or are merely the odds and ends of pathological processes cannot be definitely asserted. No definite etiology can be assigned to them. Since syphilis produces a form of intestinal ulceration which affects the jejunum more readily than the ileum and also has a tendency to cicatricial contraction and perforation, it must be considered a possible cause of ulceration in some of these cases, although definite confirmatory evidence is generally lacking. Two points are of particular importance in future cases: a careful microscopic study of the lesions, including if possible the mesenteric lymph nodes, and a determination of the presence or absence of syphilis.

[E. H. R.]

MEGA-SIGMOID, MEGARECTUM, FECAL BOLUS.

GORDON (*Surg., Gyn. and Obstet.*, July, 1922) reports at length upon these conditions, discussing profusely etiology, prognosis, diagnosis and treatment, the latter of which is distinctly operative; medical treatment entirely failing to relieve either the condition or the symptoms.

[E. H. R.]

RECURRENT DISLOCATION OF THE PATELLA.

MC AUSLAND and SARGENT (*Surg., Gyn. and Obstet.*, July, 1922) report 16 cases of recurrent dislocation of the patella, with a new type of operation for correction of the difficulty. The operation consists in splitting the patella tendon and transplanting its bony insertion in a more lateral position on the tibia. The operation sounds useful and practical.

[E. H. R.]

THE SURGICAL TREATMENT OF UTERINE PROLAPSE. END RESULT IN THIRTY CASES.

HUNDLEY, J. M. and HUNDLEY, J. M., JR (*Ann. of Surgery*, July, 1922) write as follows.

1. The interposition operation gives better results than any other operation we have used in the extreme cases of uterine prolapse.

2. Of the thirty cases there has been no return of the procidentia. In one the rectocele returned. She reported that she was sufficiently comfortable, and did not wish to be operated on again.

3. A small percentage of the patients complain of some bearing down and discomfort in the bladder after doing a hard day's work.

4. In cases with marked eversion of the vaginal walls, associated with complete uterine prolapse, a cure can be effected by plicating the cul-de-sac of Douglas, and anchoring it to the posterior wall of the cervix, together with shortening of the utero-sacral ligaments.

[E. H. R.]

HISTORY IN TUBERCULOSIS.

H. C. PARSONS (*Canad. M. A. J.*, Vol. xii, No. 4) reports that cases of congenital tuberculosis do occur, but are very rare. Huss accepting forty cases in man, Warthin and Cowie accepting only five. Such children die shortly after birth. There is as yet no satisfactory proof of inherited predisposition. In looking up the family history one should inquire as to the state of health, past and present, of all the family, also of any other permanent or temporary dwellers in the house; in other words, the whole household, especially as to symptoms referable to the respiratory system; even of other families in other than single houses. The personal history should include an enquiry, especially as to 1. Haemoptysis; *i. e.*, a dram or more of blood, as it occurs in from 60 per cent. to 80 per cent. of cases of pulmonary tuberculosis, while tuberculosis is the cause of haemoptysis in from 85 per cent. to 90 per cent. of cases. Osler pointed out that haemoptysis may precede by months any other symptom of pulmonary tuberculosis. 2. Pleurisy; Eichhorst has demonstrated tubercle bacilli in 62 per cent. of cases of "idiopathic" pleurisy; from 30 per cent. to 40 per cent. of such cases are variously reported as eventually developing tuberculosis. 3. Unexplained fever; tuberculosis is the most common cause both in children and adults. In children, a history of recurring fever and vomiting with no evident cause is a common picture in mediastinal tuberculosis. 4. Cervical adenitis; this may be due to other causes, but the resultant scars are useful in helping to establish the diagnosis. 5. Coughs and colds are important if constantly repeated. 6. Loss of weight and fatigue, not only present but past as well.

[A. W. C.]

THE TREATMENT OF SO-CALLED SCIATICA.

J. A. NUTTER (*Canad. M. A. J.*, Vol. xii, No. 5) discusses sciatica and states that it is in the majority of cases a manifestation of referred pain, and not a neuritis; pain referred from some diseased or injured neighboring joints of the spine or lower extremities, in the following order: lumbar spine, sacroiliac, and hip; other occasional sources of referred pain are: diseases of the uterus and adnexa, posterior urethra and prostate, pelvic inflammations, stone in the kidney, pyiformis irritation due to flat foot, inflammatory conditions of the lower abdomen, as appendicitis.

In the lumbar spine the greatest offender is gouty arthritis, Pott's disease, traumatic conditions, also syphilitic arthritis, typhoid spine and scoliosis being other causes.

In the sacroiliac joint any factor constantly disturbing the body equilibrium will tend in time to cause a chronic strain or relaxation of this joint, such as a pronated foot, the weight of a pregnant uterus, a pendulous abdomen, a short leg or a stiff hip.

In the hip, causes of referred pain in the sciatic nerve are non-tuberculous arthritis, arrested hip disease, all sorts of hip traumatism.

In regard to treatment, when once the exact cause of the referred pain is recognized, the appropriate treatment is at once indicated.

[A. W. C.]

THE CAUSE, SYMPTOMS, AND DIAGNOSIS OF NASAL SINUSITIS IN THEIR RELATION TO GENERAL PRACTICE.

W. S. HUNT (*Canadian M. A. J.*, Vol. xii, No. 7) describes the anatomy of the sinuses, then states that normally the sinuses are sterile even when much infected matter is breathed, until some constitutional disease or obstruction or an attack of influenza cause an infection of their mucosae to occur, leading to long continued trouble. Another cause of infection in the antrum is an infected tooth in close contact with or perforating its floor. Infection of the sinuses is unusual before the age of puberty because the frontal and sphenoid remain undeveloped until the sixth or eighth year. It may, however, complicate scarlet fever, measles, and diphtheria, and should always be suspected in cases of obscure pyrexia. The persistence of a nasal discharge after removal of tonsils and adenoids should always lead to suspicion of sinus involvement, especially if more profuse from one side of the nose. The purulent discharge may work back and reach the larynx, causing a chronic laryngitis and bronchitis, or it may leave through the anterior nares and cause occasionally recurrent facial erysipelas. Acute sinusitis is usually accompanied by headache, tenderness, discharge, and changes in the nasal mucous membrane. The headache is usually a prominent symptom, aggravated by stooping, by alcohol and tobacco, not by reading; has usually a definite periodicity. The discharge is at first watery, soon thick and yellow, may be blown out in great quantity from the nose, but often flows into the nasopharynx, where it may cause an acute otitis or pharyngitis, the latter often mistaken by the patient for tonsillitis. Acute exacerbations resemble simple acute attacks, except that there is likely to be some chronic obstruction in the intervals, excessive nasal discharge, frequent colds, headaches or dizzy spells or ringing in the ears.

There are two forms of non-suppurative sinusitis. One is called vacuum sinusitis and is caused by absorption of the air when the ostium is closed, and is frequent in the frontal sinus and accompanied by severe supraorbital headaches, increased by reading, and associated with tenderness on pressure over the pulley of the superior oblique muscle. The second form affects the ethmoid and sphenoids, is of unknown origin, is very insidious in onset, and may lead to serious results through involvement of the optic nerve. The most frequent symptom is an intractable neuralgia of the trigeminal nerve. Constitutional symptoms are usually mild: in long-standing cases a general run-down condition is frequent, with anaemia and loss of weight and inability to concentrate; or arthritis, recurrent iritis, optic atrophy, and blindness may occur. Orbital cellulitis and fatal meningitis have resulted from sinusitis.

[A. W. C.]

THE MEDICAL CARE OF POST-OPERATIVE ABDOMINAL CASES.

R. D. RUDOLPH (*Canad. M. A. J.*, Vol. xii, No. 7) pleads for closer co-operation of the surgeon with the medical man in the care of post-operative cases. He approves of washing out the stomach before the patient regains consciousness, though this does not help a great deal, as there is still considerable anaesthetic left in the blood. He approves of giving but very little food during the first twenty-four hours, then adding to the diet gradually. If the stomach does not quiet down soon, over 800 calories in 1500 cc. of water can be given in the form of monosaccharides, alcohol, simplest amino-acids, and salts. He quotes two such formulas which he has found useful. In regard to management of the bowels, reasoning from some original experimental work in culturing the blood before and after the giving of cathartics and finding positive cultures in 30 per cent. after, while none had been positive before, he advises holding off giving cathartics except after the careful consideration of a medical man. Enemata are less objectionable and mineral oil still less.

In regard to pain, if the surgeon cannot remove the cause, then morphia should be given, not codein, and not combined with atropin, as there is already frequently a distressing dryness of the mouth and throat. Slight thirst may be relieved by washing the mouth with warm alkaline solutions, or by chewing gum. Water may have to be given by rectum, subcutaneously, or intravenously, avoiding acute oedema of the lungs by the last method. Nausea and vomiting may be due to several causes; if due to the anaesthetic, free drinking of warm water with consequent washing of the stomach may be sufficient, lavage may be needed, or cocaine gr. $\frac{1}{4}$ with or without mxxv of 1/1000 adrenalin solution; if from acute dilatation of the stomach, a rare condition, lavage and pituitrin $\frac{1}{2}$ -1 cc. is of value; if of the toxic type, channels of elimination should be flushed, and glucose and soda solutions given subcutaneously or intravenously. The neurotic type is helped with large doses of bromides or with chloral and bromides by rectum. The stomach tube often has powerful psychic influence. Hiccough is best helped by atropin hypodermically or by chloralate by mouth. Tympanites may yield to hot applications and turpentine enemata, or molasses and milk enemata. Large doses of digitalis by rectum act in some obscure way to prevent or cure this condition, also to lessen the respiratory complications. Pituitrin or adrenalin may help, but must be used with caution as they raise blood pressure and may overstrain a flabby heart.

[A. W. C.]

EYE CONDITIONS IN PREGNANCY.

CHARLES GRAEF (*Canad. M. A. J.*, Vol. xii, No. 7) describes both the common and rare eye conditions occurring in pregnancy; of these, the more important are the following: the eyelids may be strikingly pigmented. Styes are common during the early months and again during lactation. There may occur phlyctenular disease, and failure of accommodation may occur from weakness of some of the eye muscles, causing headache, diplopia, etc.; also frequently paresis of the ciliary muscles occurs, often suddenly, most commonly during early lactation, with consequent very troublesome blurring. The emotional influences of pregnancy and labor may be manifested by various eye symptoms, such as an exaggerated dis-

comfort on using the eyes, photophobia, narrowing of the visual fields, and occasionally absolute blindness, all with no evidence of ocular disease. Non-syphilitic iritis may precede labor. Eye conditions associated with albuminuria form the most serious problem, occurring at any period, but most commonly late; the most important are affections of the optic nerve and retina and the visual changes due to intracranial lesions. Often there is oedema of the lower lids when no oedema occurs elsewhere in the body, but permanent oedema occurs here only when the ankles, legs, and serous cavities are involved. A detailed account of the ophthalmoscopic findings is given. As to prognosis, sight is most impaired when the optic nerve is affected; slight evidence of disease in the retina and nerve head with markedly affected vision leads to a poor prognosis, probably due to haemorrhages into the nerve trunk with resultant permanent damage. Uræmic blindness or amblyopia occurs as a part of the uræmia, develops rapidly, and the ophthalmoscopic appearances are negative even in cases of complete blindness. The pupil in purely uræmic cases is usually dilated, but may be contracted, but the light reflex is retained. The loss of the light reflex points to pathology in the optic nerve or primary optic ganglia. The blindness in uræmia is due to oedema or circulatory disturbances in the optical cortex of the occipital lobes. The author quotes an obstetrician as advising prompt emptying of the uterus in cases of albuminuric retinitis that is getting worse in spite of treatment, while the ocular complications of eclampsia, unless the case is one due to chronic nephritis associated with pregnancy, do not call for this interference.

[A. W. C.]

THE VALUE OF NEUROLOGICAL EXAMINATION IN SYPHILIS.

R. HOYT (*A. J. Syphilis*, Vol. vi., No. 2) advises most careful neurological examination of syphilitic and suspected syphilitic cases, because it is well recognized that active neurosyphilis in an insidious form may be present in any case in which the diagnosis of syphilis has been established, and that many forms of the disease which are controllable at first, later become uncontrollable. To detect neurosyphilis during its early or formative stages, a complete neurological and serological examination is essential, because the disease process may occur in any part of the nervous system and thus produce any symptom, functional or biochemical. As it is not so much the disease itself as it is the part of the nervous system involved that determines the seriousness and course, the following is suggested as comprising a complete neurological examination.

1. An objective examination of all functions of sensibility (both general and special), followed by an inquiry as to present and past subjective sensory disturbances.

2. An objective examination of the various forms of motility (both of the appendicular musculature, and of the musculature of such special mechanisms as the eyes, jaws, face, tongue, pharynx and head), followed by an inquiry as to present subjective motor disturbances.

3. Inquiry and examination as to the functional status of the involuntary mechanisms, the vasomotor, gastrointestinal, genitourinary, and secretory systems.

4. An objective examination of the special functions of the cerebral cortex (stereognosis, speech, praxis, etc.), and an inquiry as to such organic disturbances as convulsions, loss of consciousness, etc., and as to such psychic disturbances as are characteristic of the neuroses, psychoses, and borderline states.

5. An objective examination of the kinesthetic function, namely, the reaction of the nervous system to labyrinthine stimulation as induced by rotary movement.

By employing this method of examination as a routine, many cases of hitherto unsuspected cases of neurosyphilis are revealed, some with symptoms characteristic of the disease, but more with symptoms not characteristic but consistent with syphilis, the true connection with syphilis being made by the spinal fluid examination. This neurological examination should be made at intervals during the course of the disease; the author considers such repeated examinations as imperative.

[A. W. C.]

COMPARATIVE CLINICAL OBSERVATIONS ON INVOLVEMENT OF THE NERVOUS SYSTEM IN VARIOUS PHASES OF SYPHILIS.

J. H. STOKES and A. R. McFARLAND (*Am. J. of Syphilis*, Vol. vi., No. 2) discuss a group of cases from the point of view of the central nervous system. Their conclusions are in brief as follows: In very early untreated secondary cases the proportion of positive findings may reach 60 per cent. to 70 per cent., falling to 40 per cent. within the first six months, and to 25 per cent. to 30 per cent. after the first year or two. Treatment of these cases within the first year, if intensive, causes a rapid and marked response in many cases; this is the most hopeful time for improvement. The first serological sign of involvement is a rise in cell count, which should best be regarded in doubtful cases as syphilitic, though it might be due to other conditions; the next is globulin content; finally the positive Wassermann reaction. Since symptoms and signs are to be regarded as late manifestations and since there is no parallelism between early symptoms and spinal fluid findings, spinal puncture should be done routinely. Spinal puncture should not be done in early cases without a preliminary sterilization of the blood stream by one or two arsenphenamin injections to prevent a possible transfer of organisms to the meninges, but a test early in the course of arsenphenamin will give valuable aid, and should be done before substituting mercurial treatment for arsenphenamin in the first course. Patients whose spinal fluid is normal at this time, usually continue so through all stages; about 40 per cent. to 50 per cent. are of this type. This proportion can be increased by 50 per cent. to 75 per cent. further by effective treatment during the first two years of the disease; this is, then, the vital period of the disease from the therapeutic standpoint. A proportion varying from 5 per cent. to 8 per cent. in early, and from 14 per cent. to 41 per cent. in late syphilis will present negative Wassermann reactions on the blood and abnormal spinal fluids. As the syphilitic infection progresses from the early to the late stages, neurosyphilitic changes assume increasing importance. To a surprising degree, neurosyphilis complicates or underlies the internal medical aspects of the disease. In its detection, the examination of the spinal fluid may exceed any other procedure in diagnostic importance and proportion of positive results. In the diagnostic work of the Mayo Clinic a proportion of only 45 per cent. to 50 per cent. positive Wassermann reactions on the blood as compared with 60 per cent. to 70 per cent. positive reactions on the spinal fluid of syphilitics seems to be the rule.

[A. W. C.]

LIPOMA OF THE TENDON SHEATHS.

STRAUSS, I. (*Surgery, Gynecology and Obstetrics*, August, 1922), reports as follows:

This condition is a rare disease, as shown by the fact that there are only eighteen cases reported in

the literature. There are two distinct types,—lipoma arboreus and lipoma simplex. Clinically, they may be considered together because the symptoms, signs, locations, treatment, and prognosis are practically the same. In fact, preoperatively, they have seldom been distinguished.

The etiology is unknown. Some authors have tried to attribute these growths to a former tuberculous process, and Kummer concluded that they do not belong to the class of tumors but are the result of chronic inflammation. The author, however, believes that to argue that the formation of a fatty deposit is the end-result of an inflammatory process is not convincing, and believes that they are more liable to be the result of simple trauma or of unknown origin.

Lipomata of tendon sheaths are composed of fatty tissue without any evident capsule other than the tendon sheath itself, to which they are so intimately attached that the sheath must be sacrificed in removing the growth.

The author reports seventeen cases with operation and end-result.

[E. H. R.]

SOME EXPERIENCES WITH THE "MELTZER-LYON" TEST IN GALL-BLADDER DISEASE.

CUTLER, E. C., and NEWTON, F. C. (*Surgery, Gynecology and Obstetrics*, August, 1922), make the following conclusions:

The "Meltzer-Lyon" test is based upon the application of the law of contrary innervation to the biliary system. There is no proof of this at present.

It is our opinion that the specimens of bile obtained are the result of siphonage.

The test cannot be depended upon for diagnostic purposes even when accurately performed.

[D. H. R.]

HYPERPLASIA OF THE RUDIMENTARY LYMPH NODES OF THE PROSTATE.

FUCKASE, N. (*Surgery, Gynecology and Obstetrics*, August, 1922), draws the following interesting and seemingly practical conclusions from his work. It is believed that it has formerly been not understood that the region of the prostate gland was involved in such diseases as Hodgkin's, lympho-sarcoma, and leukemia.

Small, primitive, or rudimentary lymph nodes occur normally throughout the prostate in the form of very small aggregations of lymphocytes located beneath the glandular and duct epithelium, most marked toward the outlets of the ducts. They are analogous to the rudimentary lymph nodes found in other organs, such as the liver, kidneys, uterus, etc.

Hyperplasia of these rudimentary lymph nodes of the prostate occurs chiefly in chronic hyperplastic prostatitis and in primary carcinoma of the prostate. In both conditions, the hyperplasia is essentially an inflammatory one due to chronic infection, or irritation, and possesses the same significance that such hyperplasias have in other parts of the body.

In the absence of chronic inflammation, a hyperplasia of the primitive lymph nodes of the prostate occurs in the lymphatic constitution, and may be found also in other generalized diseases of the lymphoid system, as Hodgkin's disease, lymphocytoma, and leukemia.

In both the inflammatory and non-inflammatory hyperplasias well-developed germinal centers may be produced in the hyperplastic node. Other evidences of functional activity by these hyperplastic nodes are shown in the metastasis of pigment, tubercle bacilli, and carcinoma cells to them.

[E. H. R.]

CREATINURIA AND GLYCOSURIA IN MYASTHENIA GRAVIS.

WILLIAMS and DYKE (*Quarterly Journ. of Med.*, July, 1922) report observations on four cases of the above disease,—three women and one man. On a creatin-free diet they found creatin in the urine in all, in one case amounting to one-half gram in 24 hours. The addition of measured amounts of creatin to the diet resulted in the excretion of one-third to one-half of the added creatin in the urine. (Normally no creatin is excreted in the urine.) The creatin metabolism is therefore defective in this disease of the voluntary muscle. In two cases pieces of muscle were excised and analyzed for creatin, and amounts somewhat below the normal were found.

The occurrence of traces of sugar in the urine led the authors to investigate the sugar tolerance in three patients, in all of whom it was found to be diminished. It is interesting to note that, while all responded in a normal manner to the ingestion of 50 grams of glucose, the administration of 100 grams resulted in a marked rise of the blood sugar and in glycosuria. The administration of levulose, however, did not raise the blood sugar level, indicating that the liver function was normal in this respect.

The authors are inclined to explain the defective carbohydrate metabolism as due to deficient storage of sugar in the muscles, and to link it up with the abnormal metabolism of creatin.

[W. T.]

LOWERED BASAL METABOLISM IN DISORDERS OF THE ENDOCRINE GLANDS.

H. G. HILL (*Quarterly Journ. of Med.*, July, 1922) makes a welcome contribution to endocrinology, for he reports facts instead of hypotheses.

He measured the basal metabolism by the Douglas bag method, using the DuBois standards and method of calculating surface area.

Five cases of hypopituitarism showed a marked lowering of the basal metabolism, while three of four cases of acromegaly showed an increase, likewise a case of dyspituitarism.

Of great interest are his observations on borderline cases with symptoms of overaction of the parasympathetic (autonomic) system. Thus six out of 20 cases of nocturnal enuresis showed definite lowering of the metabolism associated with minor physical signs suggestive of endocrine deficiency, and all were cured or much improved by thyroid extract.

In addition, six cases of lowered metabolism are reported, occurring in cases with symptoms of vagotonia, or increased irritability of the parasympathetic system, viz., intestinal colic, mucous colitis, asthma, attacks of profuse sweating, and fainting fits. Five of these were treated with thyroid extract with much benefit.

He attempts to explain these phenomena by the connection of the thyroid with the sympathetic system. It has been shown that stimulation of the sympathetic is equivalent to inhibition of the parasympathetic, and *vice versa*, so that a decrease of thyroid activity would be likely to result in increased irritability of the parasympathetic. In the case of enuresis, the same explanation would apply, for it is known that stimulation of the parasympathetic excites emptying of the bladder.

Twelve normal controls showed a slight increase in the basal metabolism, varying from +4 to +13 per cent. This makes his findings of lowered metabolism in disease still more worthy of credence.

[W. T.]

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ANOTHER LETTER FROM MR. NUNN.

Even at the risk of wearying our readers the JOURNAL has given space to another communication by Mr. Henry D. Nunn. So far as his argument goes everybody would agree that the average person instinctively revolts at any surgical operation however trivial. The average person revolts at having a tooth extracted, but he suffers the annoyance for the benefit to be obtained. Any well-balanced individual would not submit to a hypodermic injection except under the expectation of benefit. Thousands upon thousands of persons revolt at having more serious operations performed but adopt the resources of surgery because the end justifies the means; so all of us would prefer to give up vaccination if we did not believe in its efficacy, but vaccination has been found to be potent in controlling smallpox, hence we use it for ourselves and for those under our control. According to modern conceptions, several diseases may be prevented through the creation of immunity and however the immunity is conferred we employ the means, provided the procedure has a minimum risk. We believe in requiring vaccination of those who participate in the benefits of school life, for without acquired immunity, smallpox would be a common disease exposing the multitude and laying a heavy economic burden on society.

When Mr. Nunn speaks of putrid matter he

tries to carry the impression that vaccine is especially dangerous, whereas the vast majority of persons sooner or later through accidental means, are infected with more virulent germs than those found in vaccine without developing serious after-effects. Vaccine, as now prepared, seldom does more than develop a mild reaction. It is very likely that careful breeding of vaccine virus, through successive generations in the calf, develops a strain which is potent for protection but does no lasting damage to the human subject. The records of this State seem to prove this assertion.

But Mr. Nunn's heavy artillery consists of his comment on the suggestion of submitting children to contact with smallpox for the purpose of comparing the relative number of cases of smallpox among the vaccinated and the unvaccinated. He then branches off into a suggestion that there is a widely entertained suspicion that those engaged in medical research are none too respectful of fundamental human rights of inmates of orphanages, hospitals and asylums. Let Mr. Nunn cite examples of inhumanity on the part of physicians and the medical profession would be in the field as early as anyone to correct abuses. Men possessed of scientific minds have human instincts quite as well developed as any of our people and will go as far and endure as great sacrifices as any of the heroes of history who have surrendered life for the benefit of others. Medical men have not, in recent times, resorted to the experiment of submitting children to exposure of smallpox and they never will again. In the first place they do not need to, for exposure has occurred too often and the results observed.

The Medical Liberty League would do it through the elimination of the compulsory feature of the law, and if they can ever have their way they will do it, for they advocate the omission of compulsory vaccination and that means that large groups of school children would grow up unprotected and in the presence of smallpox would be infected. The history of smallpox shows that it spreads among those not protected by effective vaccination, and without the compulsory feature many would not secure protection, for it is the tendency of many people to make no provision for protection until the menace is demonstrated.

So much space has been given to this discussion that we must now close it. The subject will be before our legislature from time to time and we shall respectfully refer Mr. Nunn to that arena.

THE SPAHLINGER TREATMENT FOR TUBERCULOSIS.

The Associated Press item in the Richmond Times reports that the British Red Cross has decided to purchase the vaccine treatment

originated by Henry Spahlinger of Geneva, and the contract has been signed. A number of American patients are now under treatment.

In an editorial in the *Journal of Laboratory and Clinical Medicine*, the statement is made that the treatment "utilizes either or both of two therapeutic principles, depending on the nature of the infection." In acute cases passive immunization, with special immune sera, is employed, and in chronic afebrile cases, active immunization with special antigens is practiced.

After a somewhat detailed explanation of the theory and application of the sera employed, the following statement appears:

"The illustrative cases reported are eight in number and are characterized by some vagueness in description. This may be because the article is in the nature of a general summary. Nevertheless it is regrettable. Three roentgen plates are shown, but they are on three different patients, so that no comparison can be made."

If the decision of the British Red Cross is founded on a report of eight cases, one may question the quality of judgment exercised. If the claims made for this treatment are found to be sustained, the action will be approved. The medical profession, however, may be justified in watchful waiting for the present.

THE RAT MENACE.

The Public Health Service and Massachusetts State Health Department are concerned in the possibility of plague extension to this country. Dr. Louis L. Williams of the U. S. Public Health Service, in association with H. C. Mosman of the Massachusetts State Department of Health, have made a study of our conditions. An analysis of the situation shows that there are sixteen municipalities in Massachusetts with water fronts used more or less for shipping. The docks along our water front are especially adapted to the propagation of rats, for the construction affords shelter and the food supply is abundant. Boston and its contiguous water fronts should, according to the minimum estimates, furnish about sixty thousand rats, Lynn over two thousand, Salem about four thousand, Beverly about three thousand, Danvers over one thousand, Peabody over one thousand, Newburyport over one thousand, Gloucester five thousand, New Bedford and Fairhaven about six thousand, Fall River about six thousand, Buzzards Bay over a thousand, Quincy over a thousand and Plymouth five thousand.

These places could be made to yield a catch of probably not less than one hundred thousand rats, but even then a campaign would have to be followed by rat proofing of the buildings and regular campaigns for extermination.

We are living under a false sense of security, because, up to the present time, no plague infected rats have been discovered on our coast-

line, from Florida to Maine, and with the exception of Norway, this is the longest coast-line that has been free from plague. According to the expectation of experts, this favorable condition will not long exist.

The Massachusetts Legislature has not been inclined to regard the situation as sufficiently serious to warrant the expenditure of much money in the destruction and study of rats, although the facts were presented at the last session. The control of rodent infestation is quite well understood and should be presided over by experts. To all who are interested, the underlying facts and the recommendations may be found in Public Health Bulletin, No. 121, under date of May, 1922.

DIPHTHERIA.

In the Public Health Reports for August 18, Dr. J. W. Schereschewsky presents a paper, revised by Dr. R. E. Dyer, on this disease. The treatise is concise, covers the whole problem involved in the etiology, pathology, clinical features and treatment of the disease.

If every medical student could be made to memorize every statement made in this article, the coming generation would be benefited to a great extent. Also, if every physician who may be likely to have to deal with the disease would supply himself with a few copies to be loaned to parents, the campaign for prevention would receive an impetus. Incidentally the propaganda of the anti-vivisectionists would have less hold on the public mind if the laity could be shown that the efficient use of antitoxin on the first day of the disease, practically reduces the mortality to zero. The only objection that the antis could bring forward is found in the frank statement that horse serum is not always well borne by a small number of susceptibles.

There is one danger, to a small percentage of the medical profession, involved in widespread information of this sort: for if a doctor should fail to make an early diagnosis, or to apply the remedy, it is conceivable that a suit for damages might result, and unless an adequate excuse could be given, a jury, furnished with the known facts, might render an unpleasant verdict.

MEASLES.

According to W. C. Rucker, U. S. Public Health Service, about 10,000 children died of measles in this country last year. This does not include many deaths from the sequelae of measles such as broncho-pneumonia and tuberculosis. The occasional resulting eye and ear disabilities also add to the importance of this disease from a public health standpoint.

Epidemics usually increase in number with

the progress of the school year. The greatest numbers of fatal cases occur in the period from two to five years of age. Contrary to the ideas of a generation ago, the transmission stage rarely extends beyond the febrile period. Testimony indicates that the infection may be carried by a third person and the possibility of second or even third attacks is recognized.

Since the disease is eminently contagious and children may be exposed during the coryza stage before the disease is recognized, parents can be of great assistance to public health officials if due care is exercised. Without this co-operation the boards of health are handicapped in dealing with this menace. The common indifference should give way to intelligent management of the early indications of coryza in childhood.

THE LAWFUL POSSESSION OF HYPODERMIC SYRINGES.

A REPUTABLE and prominent practitioner in this state desires to place in the hands of a patient a hypodermic syringe for the purpose of administering a remedy which is not a narcotic drug. This remedy is a simple glandular product which has been recommended in the treatment of a disease. The Massachusetts law definitely prohibits the possession of a hypodermic syringe under the circumstances outlined above. The text of the law is as follows:

CHAPTER 94, GENERAL LAWS.

SECTION 209. No person, not being a physician, dentist or veterinarian registered under the laws of this commonwealth or of the state where he resides, wholesale druggist, manufacturing pharmacist, registered pharmacist, manufacturer of surgical instruments, official of any government having possession of the articles hereinafter mentioned by reason of his official duties, nurse acting under the direction of a physician, employee of an incorporated hospital acting under the direction of its superintendent or officer in immediate charge, or a carrier or messenger engaged in the transportation of such articles, shall have in his possession a hypodermic syringe, hypodermic needle, or any instrument adapted for the use of narcotic drugs by subcutaneous injection. No such syringe, needle or instrument shall be delivered or sold except to a registered pharmacist, physician, dentist, veterinarian, wholesale druggist, manufacturing pharmacist, a nurse upon the written order of a physician, or an employee of an incorporated hospital upon the written order of its superintendent or officer in immediate charge. A record shall be kept by the person selling such syringe, needle or instrument, which shall give the date of the sale, the name and address of the purchaser and a description of the instrument. This record shall at all times be open to inspection by the department of public

health, the boards of registration in medicine, veterinary medicine, and pharmacy and the board of dental examiners, authorized agents of said department and boards, and police authorities and police officers of towns. Whoever violates any provision of this section shall be punished by a fine of not more than one hundred dollars or by imprisonment in a jail or house of correction for not more than six months, or both.

Any intelligent person could be taught to use a hypodermic syringe with safety, but under the law a medicine can only be administered subcutaneously by the doctor or a nurse. In some cases the circumstances of the patient call for economy, and if a remedy can be applied without undue expense, some patients should be relieved of the necessity of having it administered by a doctor or nurse.

At the time of the passage of the law relating to drug addiction, the syringe was not so generally employed in non-narcotic treatment as it is now, and is likely to be in the future, and at the legislative hearings no one suggested the possibility of subcutaneous medication other than applying to the narcotic drugs. If the treatment of some chronic constitutional diseases is to be subcutaneous medication, it may be wise to give the physician power to delegate the technical application to some person other than a nurse in some cases.

The Massachusetts law has imposed restrictions exceeding those found in the Harrison Act. Our Committee on Legislation may find it advisable to suggest some change.

NEWS ITEMS.

WORCESTER DISTRICT MEDICAL SOCIETY.—The first regular meeting for the year 1922-1923 was held Wednesday, Sept. 13, 8.15 p. m., at the University Club Rooms, 377 Main street. Program: Classifying Our Cardiacs, Dr. G. M. Albee, Worcester; lantern slides of Electrocardiograms were shown.

The discussion was opened by Dr. S. A. Levine, Peter Bent Brigham Hospital, Boston.

NOTES FROM THE BERKSHIRE DISTRICT.—On August 31st the Berkshire District Medical Society held a very interesting and well-attended meeting at the Curtis Hotel in Lenox. The State president, Dr. Bartol, was with us, as was also Dr. Torr Wagner Harmer, who spoke on "Office Surgery," and was extremely interesting.

Dr. Henry Colt has recently returned from a vacation trip spent in Alaska.

Dr. B. W. Paddock is again at work, after being confined with illness for a few days.

Dr. and Mrs. Nathan Finkelstein have a new daughter.

Dr. J. A. Sullivan recently suffered the loss of his State Registration certificate. While he was out at dinner someone entered his office and carefully removed it from the frame and carried it away. Nothing has been heard from it since.

At the recent meeting of the Berkshire District Society the resolution offered by Dr. Croft of the Franklin District was rejected by a unanimous vote.

APPOINTMENT OF DR. GEORGE H. BIGELOW.—Beginning August first, Dr. George H. Bigelow began work under his appointment as Director of the Cornell Clinic, First avenue and Twenty-seventh street, New York city.

Dr. Bigelow is the son of Dr. Enos H. Bigelow of Framingham.

REMOVAL OF LOCATION OF THE F. H. THOMAS CO.—On September 4th the F. H. Thomas Company of Boston announced their removal from their old location at 691 Boylston street to 208 Newbury street, near Exeter street, where they now occupy an entire four-story building containing over eleven thousand square feet.

Their new building will admirably accommodate their business, which had outgrown their old quarters. The first floor is devoted to the display and sale of surgical instruments, which are attractively arranged in classified groups, a sample of each item being displayed. Most of the medical supplies, together with medical books, are easily available on this floor, so that customers may be promptly served. The heavier hospital and physicians' office furniture, sterilizers, scales, etc., are located on the second floor. Part of the floor has been partitioned into three small rooms, which are equipped as typical doctors' offices for general and special practice. The front part of this floor is devoted to the display and demonstration of microscopes, microtomes, and other laboratory equipment. Their orthopedic department, including three large, well-lighted fitting rooms, together with an attractive and spacious waiting room, is placed on the third floor. Convenient to this is their work-shop, where special orthopedic apparatus is fabricated. Stock rooms occupy the remainder of the third floor. The general and private offices are on the fourth floor, which is well lighted by means of roof lights. Laboratories and sewing rooms occupy the rest of this floor, in which are manufactured the many products of the F. H. Thomas Company.

The building itself is thoroughly modern, served with an automatic elevator, and contains a large, high-studded basement, which is used for shipping and storage. It is conveniently located, scarcely three hundred feet from their old place of business.

The F. H. Thomas Company will continue to operate their branch store near the Harvard Medical School, where a full line of text books and supplies is carried for the convenience of

the students and nurses in that district. On the top floor of their branch store is situated their instrument shop, where repair work and special instruments are made.

A cordial invitation has been extended by the F. H. Thomas Company to call on them and inspect their new quarters.

THE SPRINGFIELD ACADEMY OF MEDICINE.—The regular meeting was held Tuesday, Sept. 12, 1922, at 137½ State street, at 8.30 p.m. Dr. Channing Frothingham of Boston read a paper on "Heart Irregularities."

The list of speakers for the coming year includes Drs. Alexis Carrel, J. W. Williams, W. S. Thayer, and others of equal note.

FRANKLIN DISTRICT MEDICAL SOCIETY.—The regular bi-monthly meeting was held at the Welton, Greenfield, Tuesday, Sept. 12, 1922, at 11.15 a.m. Dr. E. H. Trowbridge of Worcester, Mass., read a paper on "Medical Ethics."

DR. WM. D. WHEELER has returned from his studies at New York hospitals, and resumed his practice at 360 Commonwealth avenue.

BEQUESTS TO HOSPITALS.—In the will of Arthur B. Emmons, late of Newport, it is provided that the Newport Hospital and the Children's Hospital of Boston are each to receive \$25,000.

Miscellany.

CONFERENCE OF TUBERCULOSIS AND PUBLIC HEALTH SOCIETIES.

A CONFERENCE of the secretaries of Massachusetts tuberculosis and public health societies was called for Friday and Saturday, September 8-9, at Hotel Victoria, Boston, which was well attended by representatives of the city and county organizations. The main purpose of the meeting was not medical, but rather to organize the coming Christmas seal sale on a broader basis than heretofore. Mr. R. V. Spencer, Executive Secretary of the Massachusetts Tuberculosis League, was Chairman, and the sessions consisted of round table discussions instead of set papers. Mr. Basil G. Eaves, Campaign Secretary of the National Tuberculosis Association, spoke of the general needs of organization, while Mr. Ernest D. Easton, Executive Secretary of the New Jersey Tuberculosis Association, one which had had an unusually successful sale the past two years, outlined his methods. Miss Bernice W. Billings, Executive Secretary of the Boston Tuberculosis Association, told of the good work at the Prendergast Preventorium for Children, and noted the progress of the Modern Health Crusade, and the field nurses of the

League, and Miss M. Alice Gallagher, Executive Secretary of the Norfolk County Public Health Association, spoke of work in rural Massachusetts, in which a serious effort is under way to improve conditions. Dr. Edward O. Otis spoke of the distribution of tuberculosis. Mr. Speneer presented in his introductions of the successive speakers a deal of interesting information on ratios, variety of work, needs of different movements undertaken by the League, etc., and Mr. John Ritchie and Mr. Roseoe W. Vining discussed informally publicity methods and organization for the Christmas seal sales, respectively.

REPORT OF THE HAVERHILL BOARD OF HEALTH FOR 1921.

The conspicuous features outlined are as follows:

1. Lowest death rate in the history of the city, 12.17 per 1,000 of population.
2. Average of the 667 decedents, 47 years, 8 months, the maximum longevity for 42 years.
3. Increase in the average age of decedents from 30 years, 10 months in 1880, to 47 years, 8 months in 1921, a gain of 54 per cent.
4. Infant mortality rate of 1.56 per 1,000 of population with 86 decedents under 1 year of age.
5. One death from diarrhoea and enteritis of children under 2 years of age, with a rate of 1.82.
6. Only 114 deaths of children under 5 years of age, the percentage of 17.09 to total mortality being the lowest ever known.
7. Unusually low percentage of 5.71 for 68 decedents born during calendar year, as compared with births.
8. One death from typhoid fever with a rate of 1.82.
9. Smallest number of deaths from tuberculosis, 42, since that disease was made reportable.
10. Lowest death rate from preventable diseases, 1.40 per population, with 77 deaths.
11. Average age of 38 years, 6 months for decedents during the past 42 years, with an average death rate of 15.97 per 1,000 of population for that period.

The mortality rate of 12.67 is considered by the members of the Board most remarkable, confirming the belief that Haverhill people are becoming more and more interested in public health matters through our educational efforts, and are, in consequence, taking greater care of themselves and paying more attention to their health by frequent physical examination, thus prolonging their lives.

Haverhill, when the Board of Health was first created in 1880, had 350 deaths with population of 18,506, the rate that year being 18.02 and the average age of the 350 decedents being 30 years and 10 months.

The population of Haverhill, as estimated by

the Federal and State Census bureaus for January 1, 1921, was 54,817.

This estimated population gives a rate of 12.17 per 1,000, the lowest death rate in the history of the city, with 667 deaths, exclusive of stillbirths, and a new high mark was attained last year in longevity, with the average age of the decedents 47 years and 8 months.

The highest death rate for Haverhill was 21.08 in 1886, when there were 481 deaths with a population of 22,818, the average age of decedents that year being 28 years, 9 months. Three years previously the average age of decedents was 26 years, 11 months, the lowest point ever reached.

A review and study of the mortality statistics as compiled by this Department, discloses that there have been 23,553 deaths since 1880, the yearly average being 560, this giving an average rate of 15.97 per 1,000 of population and the average age of decedents having been 38 years, 5 months.

It is interesting to point out in this connection that since 1900, when Health Departments were first changed from Committees on Nuisances to take up the advocacy of preventive medicine, the death rate has been less than 15 per 1,000 and in only one year, 1906, was the average age of decedents less than 40 years.

It is also most notable that while the population of Haverhill has almost trebled since the Board of Health was first established in 1880, the death rate has decreased about 33 per cent. while the span of life of those who have passed on has increased about 54 per cent.

The 1921 mortality statistics disclose that two-thirds of the 667 who died were over 40 years of age and of that number 185, or 27 per cent. of the total number of deaths, lived beyond threescore and ten. Another feature for 1921 was that 10 of the decedents were over 90 years of age, one of whom lacked a few months of becoming a centenarian.

It is singular that one-sixth of the deaths were children under 5 years of age and another sixth from 5 to 40 years, the 30-40 age group numbering 44, while in the infant mortality group of under one year, there were 86, 27 of whom lived less than a day.

The 114 children under five years, who died within the past 12 months, gave a percentage of 17.09 to total mortality, this being the lowest rate within the past 42 years. The decedents under 1 year numbered 86, with a rate of 1.56 per 1,000, and of that number 68 were born during the calendar year with a rate of 5.71 as compared with the total number of births.

Deaths from diarrhoea are generally regarded as the real index of infant mortality and we feel pleased in calling attention to the fact that during the past year there was only one death from that cause among the 96 children who passed away before they reached their second

birthday, with a rate of 1.82, the lowest in the history of our city.

Haverhill was free from any unusual outbreak of diseases in the past year, the total number of deaths from preventable diseases having been 77, with 47 deaths from pneumonia, of which 28 were lobar, and 42 deaths from tuberculosis. This gave a rate of 1.40 per 1,000 of population, another record mark in the work of the Health Department.

The morbidity and mortality figures for the past two years, on reportable diseases, were:

	1921		1920	
	Reported	Deaths	Reported	Deaths
Chicken-pox	214		69	
Diphtheria	239	10	247	8
German measles	4		38	
Infection of eyes	1		24	
Measles	25		1,011	8
Mumps	112		155	
Scarlet fever	135	2	81	1
Tuberculosis	98	47	117	57
Typhoid fever	9	1	12	
Whooping cough	209	5	98	3
Anterior poliomyelitis	19	2	25	9
Lobar pneumonia	118	28	162	44
Cerebro-spinal meningitis	2	2	3	2
Influenza	62	3	1,113	49
All other	32		3	
Total	1,286	101	3,469	181

The number of deaths from diphtheria as will be seen from the table, was unusually large, this fact being more clearly seen if reference is made to the table of deaths from that disease for many years past. The case history of the 10 decedents shows that five had complications of myocarditis and two were laryngeal, and these with the three others had been ill for from three to five days before the cases were reported.

This department has already arranged for the introduction of the Schick test, a harmless and simple test to determine susceptible and immunes, and we hope to enlist the co-operation of parents so that within a short time, diphtheria will be reduced to a minimum, if not entirely wiped out, especially among school children and those of pre-school age.

This report is a model of concise and complete information of the health conditions and problems of Haverhill.

LEGISLATIVE MATTERS.

NATIONAL HEALTH LEGISLATION—REPORTED BY THE NATIONAL HEALTH COUNCIL.

The Tariff and Public Health. H. R. 7456. The Senate passed the tariff bill on August 19th. The bill has gone to conference, as the Senate made numerous changes, but it is expected that a conference report will be adopted about September 15th.

The Senate made notable changes in the tariff

bill regarding synthetic medicinals and chemicals, about which much controversy has existed. While efforts to continue the embargo provisions of the present emergency law did not succeed, prohibitive duties were incorporated, which are regarded as equivalent to an embargo. It was asserted that the manufacture of synthetic drugs and medicinals from coal tar products in the United States during the war could not be continued against German competition, unless amply protected by tariff duty. Among the products in this category are, aspirin, novocaine, benzoic acid, phenol and many other similar coal tar products. Such articles will bear a tax of 75 per cent. ad valorem and an additional 10½ cents per pound when unfinished. They will be taxed 90 per cent. ad valorem and an additional 10½ cents in a finished state. The bill places a 25 per cent. duty upon chemicals, drugs and medicinals, whether dutiable or free, when they are imported in capsules, tablet or similar forms.

Defining Butter and Fixing a Standard for Butter. S. 3858. Favorably reported to the Senate by the Committee on Forestry and Agriculture, August 19, 1922, and placed on the Senate Calendar.

This bill describes butter as the food product usually known as butter, made exclusively from milk or cream, or both, with or without common salt and with or without coloring matter, and containing not less than 80 per centum, by weight, of milk fat.

MATTERS NOT PREVIOUSLY CONSIDERED.

The Coal Situation and Congress H. R. 12-472. Introduced by Representative Winslow, August 26, 1922. Favorably reported in the House by the Committee on Interstate and Foreign Commerce, August 29, 1922.

Since a shortage of coal this winter may develop into a serious health problem, we are including a résumé of the coal bill before Congress.

This legislation places the Federal control of coal prices and distribution of coal in the hands of a Federal Fuel Distributor, to be chosen by the President. The legislation sets out the fact that "A National emergency exists which endangers the public health and general welfare of the people of the United States."

It empowers the Federal Fuel Distributor to ascertain:

1. The available supply of coal and other fuel and the extent of threatened shortage;
2. The fields of production and best methods of distribution;
3. The prices normally and usually charged for such coal and whether current prices are just and reasonable;
4. The kind and location of consumers.

The Fuel Distributor is required to issue orders for priorities in car service, embargoes and other suitable measures in favor of or against any carrier or region, and to take other

steps necessary for priority in car service and distribution of coal.

The bill fixes a fine and prison penalty for any fraud practiced by a person or corporation violating any order made by the Fuel Distributor.

A similar bill, S. 3940, was reported in the Senate, August 29, 1922.

Changes in Personnel of the U. S. Public Health Service. In accordance with regulations of the U. S. Public Health Service and the policy of replacing administrative heads every four years, the following six assistant surgeon generals have been appointed in place of the present incumbents:

Division of Venereal Diseases; Dr. Mark J. White to succeed Dr. C. C. Pierce.

Division of Marine Hospitals and Relief; Dr. F. C. Smith to succeed Dr. C. H. Lavinder.

Division of Scientific Research; Dr. A. M. Stimson to succeed Dr. J. W. Schereschewsky.

Division of Foreign and Insular Quarantine; Dr. J. D. Long to succeed Dr. R. H. Creel.

Division of Domestic Quarantine; Dr. W. F. Draper to succeed Dr. A. J. McLaughlin.

Division of Sanitary Reports and Statistics; Dr. B. J. Lloyd to succeed Dr. B. S. Warren.

One million dollars Government Reward for Discovery of Disease Cures. H. R. 12409. Introduced by Representative Sproul, August 23, 1922. Referred to the Committee on Interstate and Foreign Commerce.

The sum of \$1,000,000 in ten equal annual installments is appropriated, by this measure, to any individual discovering a successful cure for tuberculosis, cancer, pneumonia, paralysis, epilepsy, or dementia praecox. A board would be established, consisting of the Surgeon General of the Army, the Surgeon General of the Navy, and the Surgeon General of the U. S. Public Health Service, to investigate any discoveries submitted and to authorize payments of the awards. This board is also empowered to recruit an advisory board, composed of eminent specialists, to facilitate its investigations. It is provided that when payment has been made for a discovery, no further payment shall be made for discovery of a treatment for the same disease.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

MONTHLY HEALTH BULLETIN.

July and August showed a slight increase in work over that of the same period last year, with a total of 4,526 new patients being admitted and 49,000 visits made, but the work was light, as is customary with mid-summer months.

HEALTH CONDITIONS PECULIAR.

Certain peculiarities marked the health conditions during this period. Normally, the bulk of the work shifts almost as regularly as the

seasons, from digestive diseases in summer, to respiratory in winter. But during July and August the expected increase in digestive diseases did not occur; and while respiratory diseases dropped to the usual low summer rate during July, they increased again in August, particularly bronchitis and pneumonia.

ACUTE AND COMMUNICABLE DISEASES.

Typhoid fever showed a most encouraging decrease. Four new cases were admitted in August, against 12 in August, 1921; in July, none, against 6 cases in July of last year. Measles, which have been very prevalent, dropped to 94 new cases in July, the lowest number in several months, and to 35 in August, the latter figure still, despite the sharp decline, heavier than that of August, 1921. Whooping cough increased in August.

INCREASE IN ACCIDENTS.

In July there were fewer cases of burns, traumatisms, fractures, etc.,—74 as compared with 79,—while in August there was an increase,—103 as compared with 59 of August, 1921.

CHRONIC DISEASES.

Cancer and diseases of the heart, which have been steadily increasing for several months, showed a big drop in July, when there were only 16 new cases of cancer and 19 of diseases of the heart admitted.

In August the decrease in heart cases continued, but cancer again increased.

NUTRITION CLASSES.

The nutrition classes, which have been established in the Hyde Park Health Centre for the benefit of those children found by the physician in charge of the Child Health Clinic to be 7% or more underweight, were continued during July and August, 9 classes being held, with a total attendance of 81. A majority of these children were more than 10% underweight.

The classes have aroused a surprising interest and coöperation in both parents and children, and while the physical results have been highly satisfactory, the education resulting from the group instruction has been unexpectedly successful.

VITAL STATISTICS.

In looking over the report issued under the direction of Mr. Edgar A. Bowers, State Registrar of Vital Statistics, it occurred to the Editor that since some faulty interpretations relating to maternal deaths might exist in the mind of a casual reader, further explanation would be of assistance, and a letter was written asking for interpretation of the figures.

The report as a whole is of great value, both because of the substance, and also because of its unusually early completion and distribution. The Registrar is entitled to great credit, for one can find almost everything relating to vital statistics in the volume. The explanatory chapters aid materially in the interpretation of the figures. The reply of the Registrar is appended.

Editor, Boston Medical and Surgical Journal:

In reply to your letter of September 11 relative to an apparent discrepancy in the tables on page 76 and page 90 of the 1921 report:

I would point out that on page 76 the total number of deaths in the puerperal state is given as 580. The first item, No. 143, you will note, includes its sub-divisions A, B, and C. Also sub-divisions 145, A, B, and C, are included in 145. This occurs wherever there is an indentation in the type, and is in accordance with the international classification. However, I can easily see where one would get mixed up, and on the next printing intend to take some steps either by larger type or by a note to show that these sub-divisions are included in the items of which they are a part. On page 90 the abridged list follows the abridged list furnished by the Census Bureau, although the new abridged list has not been received, and this abridged list is made up in conformity with the old one as near as may be. You will note that items 31 and 32 in the abridged list make the total of 580 referred to on page 76.

I trust the above will explain the question asked in your letter. If there is anything further I can help you on, I will be very glad to do so.

Very truly yours,

EDGAR A. BOWERS,

State Registrar of Vital Statistics. Office of the Secretary of the Commonwealth of Massachusetts.

RÉSUMÉ OF COMMUNICABLE DISEASES

AUGUST, 1922.

GENERAL PREVALENCE.

There were 3,304 cases of communicable diseases reported during the month; for July, 1922, there were 4,093; for August, 1921, 3,295 cases. For the past month there has been a marked decrease in chicken-pox, measles and scarlet fever. Diseases showing an increase are as follows: typhoid, poliomyelitis, diphtheria, whooping cough, meningitis, tetanus, septic sore throat, tuberculosis (pulmonary).

Anterior Poliomyelitis.—Fifty-five cases were reported for the month. These cases were widely distributed over the eastern part of the State, but there was no sharply localized outbreak. The number of cases for July, 1922, was 23; for August, 1921, 61 cases.

Diphtheria.—Four hundred eight-two cases were reported for the month, a considerable increase over 380 for July; for August, 1921, there were 516 cases.

Dog-bite requiring anti-rabic treatment was reported in 23 cases for the month, as against 36 for July, 1922. The number of cases reported for August, 1921, was 18.

Hookworm.—There were 31 cases reported for the month, but practically all were among aliens who are being held for deportation.

Measles was reported in 338 cases, a very marked decrease for July, 1922, when 1,275 cases were reported; August, 1921, showed 268.

Ophthalmia neonatorum was reported in 100 cases for the month, against 63 for July, 1922, and 141 for August, 1921.

Tuberculosis, pulmonary, was reported in 547 cases for the month; the number for July, 1922, was 506, and for August, 1921, 515.

Typhoid Fever.—One hundred and one cases were reported for the month, 73 for July, 1922, 113 for August, 1921.

Whooping Cough.—Four hundred eighty-three cases were reported during the month, 413 for July, 1922, 375 for August, 1921.

RARE DISEASES.

Anterior poliomyelitis was reported from Ashland, 1; Attleboro, 3; Boston, 10; Brookline, 2; Dartmouth, 1; Dudley, 1; Everett, 2; Fall River, 7; Lawrence, 1; Lynn, 2; Marblehead, 3; Medford, 1; Melrose, 1; Nantucket, 1; New Bedford, 1; Newton, 1; Northbridge, 1; Somerville, 7; Springfield, 1; Swampscott, 2; Taunton, 1; Webster, 3; Yarmouth, 1; Methuen, 1; total, 55.

Dog-bite requiring anti-rabic treatment was reported from Arlington, 1; Attleboro, 1; Belmont, 1; Billerica, 1; Boston, 3; Cambridge, 3; Lowell, 7; Lynn, 1; Methuen, 1; Somerville, 1; South Hadley, 3; total, 23.

Dysentery was reported from Adams, 1; Boston, 2; Chelsea, 2; Melrose, 1; total, 6.

Encephalitis lethargica was reported from Lynn, 1; Salem, 1; Webster, 1; total, 3.

Epidemic cerebrospinal meningitis was reported from Boston, 2; Fall River, 2; Lowell, 1; Southbridge, 1; total, 6.

Hookworm was reported from Boston, 31.

Malaria was reported from Boston, 1; Lowell, 1; total, 2.

Pellagra was reported from Boston, 1.

Septic sore throat was reported from Boston, 1; Fall River, 1; Haverhill, 1; New Bedford, 2; Salem, 3; Whitman, 1; Winchester, 1; total, 10.

Tetanus was reported from Beverly, 1; East Bridgewater, 1; Gloucester, 1; Haverhill, 1; Hingham, 1; Melrose, 1; Northampton, 1; Worcester, 1; total, 8.

Trachoma was reported from Boston, 4.

DAMAGES ALLOWED PHYSICIAN FOR PERSONAL INJURY.

The Supreme Court of Pennsylvania says that the plaintiff, a practising physician, aged 69, while a passenger in a car, was struck on the head by a suitcase or hand satchel falling from a rack above the seat in which he was sitting. There was evidence that he was rendered unconscious, and, as a result of the injury, became unable to practise his profession to the same extent as before the accident, his earnings having decreased from \$7 or \$10 a day to \$2.50 a day; that his eyesight and memory had become impaired, as had also his general physical condition. A verdict was rendered in his favor for \$7,250. The court below, having refused a new trial, the defendant appealed. The statement of the question involved was whether the size of the verdict was manifestly too great and plainly the result of prejudice. The Supreme Court found nothing in the record indicating prejudice against the defendant, and it cannot say that the verdict was so excessive as to warrant its interference on that ground, in view of the testimony establishing the injury received by the plaintiff and its effect on him and the resultant decrease in the receipts from his professional calling; wherefore, the judgment for the plaintiff is affirmed.—*Journal of the Medical Society of New Jersey.*

LIVES SAVED BY THE USE OF LABORATORY ANIMALS.

The Colorado Association for the Protection of Public Health is planning for the publication of reports of cases which illustrate the value of vaccines and sera derived from laboratory animals, or of any use of animals in the saving of human life.

This information will be of value in combating the opponents of the use of animals in the treatment and prevention of disease.

If physicians would report all such material in concise form for use as occasion requires, good would result.

THE IODINE SUPPLY.

J. F. McCLENDON, in an article in *Science* gives the results of his analysis of sea water. According to his investigations, about all of the earth's iodine is found in sea water, and amounts to sixty billion metric tons.

In order to overcome the prevalence of goiter he recommends the use of a table salt prepared from sea water. By the method recommended by him, the expense would be no greater than now exists. At the present time iodine is not found in table salt.

The addition of powdered kelp to food is recommended by Dr. Turrentine. Small amounts of kelp are not recognized, and the iodine content is valuable. Although sea foods may supply some iodine, the amount is too small to be of much value.

It is becoming quite generally believed that the goiter belt is included to a large extent in mountainous and glaciated regions.

AMERICAN RELIEF ADMINISTRATION.

Saratov, Russia, August 25—Nearly half a million persons have been inoculated in this district, as a result of the inoculation campaign against disease being conducted throughout Russia by the American Relief Administration. Dr. John E. Toole, A. R. A. medical supervisor for this district, has submitted to Moscow figures showing that 498,128 have been inoculated with anti-cholera serum and 251,156 have been vaccinated for the prevention of smallpox.

In the smallpox vaccination almost 90 per cent. were "takes," which is regarded as a high percentage. The vaccine and other medical supplies were made possible by the American Red Cross appropriation to the A. R. A., and of surplus medical supplies furnished by the United States army.

Obituary.

JOHN RICHARD SLATTERY, M.D.

DR. JOHN R. SLATTERY, Superintendent of St. Elizabeth's Hospital, Brighton, and private physician to his Eminence, Cardinal O'Connell, on his recent journey to Rome, dropped dead on the golf links of the Woodlawn Club at Auburn-dale, September 11, 1922, after a round with his brother, the Rev. Laurence W. Slattery, rector of the Church of Our Lady Help of Christians, Newtonville.

Dr. Slattery was born in South Boston, January 1, 1867, was educated in the public schools of the district, at Boston Latin School, Georgetown University, Washington, D. C., and at Harvard Medical School in the class of 1891. He

settled in practice in South Boston. On the taking over of St. Elizabeth's Hospital by the Catholic Archdiocese of Boston in 1911, Dr. Slattery was appointed superintendent, headed the drive for the funds with which the five new buildings on Cambridge street, Brighton, were erected, and has been the head of the institution since.

He was created a knight of the Order of the Holy Sepulchre by Pope Pius X, and was also a member of the Third Order of St. Francis. Among the societies in which he held membership were the American Medical Association and the Massachusetts Medical Society.

Correspondence.

ANOTHER LETTER FROM MR. NUNN.

Boston, Mass., September 1, 1922.

Mr. Editor:

May I write again to say how greatly I appreciate your courtesy and fairness in publishing my letter in answer to your editorial of Aug. 17, dealing with my radio talk on vaccination?

I wish it might be possible always to discuss the subject of vaccination with gentlemen of the medical profession, without heat or acidity on either side.

It seems quite possible to me that our friends of the medical fraternity do not realize how instinctively the average man or woman revolts at the thought of vaccination, when the matter employed in the practice is described in simple terms. In spite of the ordinary man's confidence in physicians, and his high regard for their calling, he does not readily credit the possibility of safeguarding the health of an already healthy child by infecting his blood with putrid matter taken from a diseased animal, especially if he be told that the original source of this particular strain of virus was matter taken from the pustules on the body of a human smallpox victim.

The ordinary citizen is quite certainly becoming doubtful as to the beneficial intent of ultra-scientific investigations involving human beings. Such a proposal as that contained in your editorial of August 31, to the effect that the value of vaccination be determined by subjecting two hundred children to contact with smallpox, advanced by you with apparent seriousness, is not calculated to dispel the growing sense of uneasiness, felt by many sane people, regarding the seeming trend of the so-called advanced section of the medical profession, toward human experimentation.

I appreciate that your suggestion was doubtless ironical, for it is unthinkable that you would either countenance or participate in so hideous an experiment upon children, vaccinated or unvaccinated. Yet, a suspicion is more widely entertained by the common run of people than you may be aware of, that those engaged in medical research are none too respectful of the fundamental human rights of inmates of orphanages, hospitals, and asylums, to exemption from being treated as material for clinical experimentation.

Were vaccination now, for the first time, proposed to the medical profession, I fully believe that it would be rejected, with scorn. The standard arguments for this practice, if now freshly advanced, would appeal to minds uncontaminated by a century of propaganda, as the *reductio ad absurdum* of material-

ism; a veritable "counsel of despair"; a vain hope of finding health and life in the very essence of disintegration and death.

Sincerely yours,

HENRY D. NUNN,
Manager and General Counsel, Medical Liberty
League, Inc.

COMMENT BY DR. CROFT.

September 7, 1922.

Mr. Editor:

I thank you for your editorial reply to the letter of the General Counsel of the Medical Liberty League on "Smallpox Treatment and the Facts Relating to Vaccination." Your courteous attitude, forceful arguments and apt similes should commend themselves to every thoughtful physician.

Your explanation of the apparent ignorance of the former president of a State Society is unquestionably true, and typical of hundreds of us whose special work does not require accurate, detailed and up-to-date information on the methods of preparing the different things which we use for therapeutic ends, but we are and should be "thoroughly dogmatic" as to the efficacy of the underlying principles when based on extended experiences and which have not yet been successfully controverted.

You do well to emphasize the solemn obligation which we physicians have assumed to protect against disease those who through ignorance or otherwise, cannot help themselves, and that the proper discharge of such obligation may even require entering upon an unpleasant and personally disagreeable controversy in order that authoritative facts shall not be undermined by sophistry and specious arguments.

The false interpretations being placed on unguarded remarks of physicians, by the supporters of the various cults, emphasize anew the obligations which physicians are under to inform themselves of proven facts, to defend them on occasion, and to change their attitude only as a result of scientific proof. Too many of us today are aiding false doctrine by our supine attitude of indifference or cowardice.

Yours truly,

B. P. CROFT.

THE HARRISON NARCOTIC ACT.

September 8, 1922.

Mr. Editor:

In your editorial discussion of the Harrison Narcotic Act, in the issue of August 31, page 341, you say:

"The registration of physicians with the right conferred to use narcotic drugs is logical, but revenue tax is abhorrent and should be repealed."

The tax is the sole foundation upon which the Harrison Narcotic Law rests. Repeal the provisions of the act that impose the tax and the entire jurisdiction of the United States Government over the manufacture, sale and distribution of narcotic drugs within the boundaries of the State falls, except as the Federal Government might regulate the distribution of such drugs through the mail.

It can hardly be denied that the United States Government in enacting the Harrison Narcotic Law utilized its constitutional taxing power in a way that was never conceived by the framers of the Constitution, to take over certain police duties normally belonging to the State. Its motive, however, was such a worthy one and the trespass has been tolerated so long and has been so broadly sustained by the United States Supreme Court that there is no likelihood that the United States Government will retire from the field.

The most that can be hoped for is that the tax will be reduced to the nominal amount originally fixed, \$1.00, or possibly less, and that the regulations governing the medical profession in prescribing and administering narcotic drugs may be kept within the limits of the Act and within reason. A request for a reduction of the tax was submitted to the United States Treasury Department by the Committee on Narcotic Drugs, Council on Health and Public Instruction, under date of May 6, 1921, and the matter is still pending.

Yours very truly,
Wm. C. Woodward,
Executive Secretary.

NOTE: Our esteemed correspondent agrees with the spirit but objects to the text of the editorial in question. A registration fee sufficient to pay the cost of operation of the system is logical and would not be construed as a tax. When the amount provides for revenue it is then that objection can properly be made.

Dr. Woodward, in the last part of his communication, submits evidence of his belief that the "tax" is too large. Most physicians are not seriously affected by the three dollars charged. It is the spirit of the Government, in its evident purpose to impose an unnecessary tax on members of a profession who have contributed more in unpaid service to the people than any other class of citizens, that makes the tax abhorrent. Physicians who are not criminals should not be compelled to contribute money for the suppression of crime even though the criminal makes unlawful use of drugs which the doctor employs legally.

Would it not be as logical to tax doctors for the maintenance of that part of police departments that is employed in investigating and prosecuting abortions?

—EDITOR.

EXPERTO CREDE.

Mr. Editor:

In the BOSTON MEDICAL AND SURGICAL JOURNAL, in the review of my booklet, "The Treatment of Ordinary Diseases," exception is taken to my views about acute middle-ear disease, acute appendicitis and digitalis. My judgment in these affections and in the use of digitalis has all been supported time and again already, by statements based upon a wide experience. It is unfortunate for those practitioners of a late date, that in their practice and convictions, they are supported almost solely by what they hear and read in medicine, which unfortunately does not take count sufficiently, if at all, of what has been acquired by lifelong observation, both in hospital and private practice. Further, it would be well, not infrequently, if the physicians who write reviews of books, would first acquaint themselves with previous works of the writer whom they criticize.

BEVERLY ROBINSON.

New York, Sept. 12, 1922.

PHYSICIANS REGISTERED BY THE BOARD OF REGISTRATION IN MEDICINE IN THE EXAMINATION HELD JULY, 1922.

Abrams, Jacob	Bennett, Max
Albert, Simon	Borenson, Wyman
Apelian, Albert Suleiman	Berger, Benjamin Johua-
Apple, Bernard	than
Atkins, Samuel Maurice	Billard, Emmanuel Wil-
	liam
Baker, Henry	Blake, Philip Warren
Barber, Carroll Glenn	Bolan, Beatrice
Batal, John Thomas	Brennan, Earle Henry
Baxter, George Raymond	Briggs, Harry Goddard

Brauning, Paul Henry	Lussier, Joseph Herménégilde
Burgoyne, Roger Merton	Lynch, Clement
Butterfield, Clifford Allen	

Calderone, Angelo	McQuade, Frank Joseph
Carozana, Anthony Peter	MacLachlan, Kenneth
Casey, Daniel Francis, Jr.	Long
Catron, Lee Riley	Madsen, William Joseph
Champ, Anthony Marius	Marcus, Saul Maurice
Cohen, William Benjamin	Marshall, Orland Smith
Coleman, Joseph Edwards	Masters, Jacob Meyer
Connor, Thomas John	Meichen, John Willis
Consales, Peter Augustine	Miller, Howard Stephen
	Moriarty, William Thom-
	as

Dallas, Marion	Norwich, Louis Edward
Davidoff, Leo Max	
Davis, Hollowell	O'Connell, Maurice Win-
Downey, Edward Thomas	throp
Dunham, Rand Augustus	Olson, Bertha Catherine
Duncombe, William Col-	
by	

Edlin, Jacob Vernon	Park, Harry Linwood
Elliott, John Joseph, Jr.	Parsons, Edward Field
Enander, Fred Conrad	Parsons, Neil Lehan
Ernlund, Carl Helge	Perkins, Edward Burton
Evers, Harold	Perry, Edward Louis
	Pepin, William Reid
	Pollack, Benjamin
	Price, Willis Gittens

Feinberg, Barnice	Rehehan, Lawrence Ar-
Flinn, Richard William	thur
Flippin, Earl Edward	Reynolds, Francis Albert
Flashman, David Harry	Richardson, Guy Lewis
Fong, Theodore Clare-	Ritvo, Max
mont Chen	Robinson, Leda Helen
French, Harry Tapley	Rodin, Oscar
French, Joseph Henry	Rogers, Harriet Emmeline
Fuller, Wilfred Joy	Rotman, Nelson
	Rutkoff, Benjamin

Garfin, Samuel William	Schwartzman, Harry
Goldberg, Bernard Is-	Shea, Cyril Emmett
dore	Shohet, Gabriel Harry
Goldman, Joseph	Skyvsky, Solomon Louis
Goldstein, Henry	Small, Abraham Solo-
Gelerman, Joseph Max	mon
Gilbert, Raymond Edw-	Smiley, Harold Everett
in	Smith, Roswell Haydn
Givan, James Alexander	Sprague, Claire
Green, David Samuel	Suarez, Jenaro
Green, Isadore	Sutton Lee Edward, Jr.
Grossman, Julius	

Hartigan, John Joseph	Talbot, James Henry
Henvey, Thomas Joseph	Tennis, Max
Hooper, Raymond Ernest	Thomas, Elizabeth Alice
	Thompson, Howard King
	Tillotson, Kenneth James
	Titelbaum, Barnett
	Charles
	Triedman, Harry
	Tyler, Charles Marshall

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Josselson, Israel	Versteegh, Arnoldus Dirk
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Kahn, George	Wallner, Edmund
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The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

PAPERS AND DISCUSSIONS OF THE SECTION OF TUBERCULOSIS.

AT ITS MEETING AT THE HARVARD MEDICAL SCHOOL, BOSTON, JUNE 13, 1922.

TUBERCULOSIS IN CHILDREN FROM THE STANDPOINT OF THE PEDIATRIST.

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON.

It would be impossible for me, of course, to cover the whole subject of tuberculosis in childhood in the 15 or 20 minutes allotted to me. I feel quite confident, moreover, that no one wishes me to do this, even if I were competent to do it. What is wanted of me, I think, is a summary of some of my own impressions and experiences with this disease in childhood during my career as a pediatricist.

ETIOLOGY.

Tuberculosis in childhood may be caused by either the human or the bovine type of organism. It seems to me that the relative frequency of infection with these two types is of no practical importance. Both may cause the disease. We must, therefore, guard against both. Infection with the bovine bacillus may be prevented by the elimination of tuberculous cows with the aid of the tuberculin test and by the general

pasteurization or boiling of milk. Infection with the human type of organism can be prevented by the separation of infants and young children from adults with open tuberculosis and diminished by instruction in and enforcement of the proper precautions to be taken to prevent contagion.

MODE OF INFECTION.

The relative frequency of infection through the respiratory and digestive tracts seems to me likewise to be of little practical importance. Infection may take place through either path. Hence, we must guard both. It is also of no practical importance, if infection takes place through the respiratory tract, whether there is a primary focus in the lung, as Gohn teaches, or the bacilli pass directly through the lung to the tracheobronchial glands, as was until recently believed. The result is the same either way. Furthermore, what difference does it make, practically, when tubercle bacilli get into the tracheobronchial lymph nodes, whether they come directly through the bronchi and lungs or indirectly through the stomach and intestines?

TUBERCULIN TEST.

Although years ago I used the subcutaneous and eye tests, the only one with which I am now familiar is the skin, or Pirquet, test, and the conclusions which I shall draw are based on this test alone. This test is of great value in infants. A positive test in a sick baby, showing

no other evident cause for its illness, is very strong evidence in favor of the trouble being tuberculosis. A negative test, in my experience, almost positively excludes tuberculosis as the cause of the illness, unless the baby is manifestly overwhelmed by the infection. I am aware that in certain instances a positive test may be obtained after repeated trials. I am somewhat doubtful as to the value of a positive test under these circumstances, although my experience has hardly been sufficient, perhaps, to justify a definite opinion.

The test is of less value in children, and the older the child, the less is the value of the test because of the steadily increasing frequency of infection with age. A negative test is of great importance in childhood, however, and practically rules out tuberculosis unless the child is evidently overwhelmed by some infection. Because of the severity of the infection, the test is usually negative in acute miliary tuberculosis and in tuberculous meningitis, which is, of course, a variety of acute miliary tuberculosis. I have also seen it absent several times in tuberculous peritonitis, even when it was not of the miliary, aseptic type. A positive test is of much less value than a negative in childhood, because, while it shows that the child has been infected with tuberculosis, it does not show that the illness which it has is tuberculous. It may as well be due to some old or latent infection, or to the infection of some hidden gland, as to the illness from which the child is suffering. It is of some help, however, if the lesions which the child has may well be tuberculous and there is no other evident cause for the illness. Great care must be taken about calling pulmonary lesions tuberculous, however, simply because the tuberculin test is positive. I have seen many mistakes of this sort made, because physicians did not realize that physical signs merely indicate certain changes in the lung tissue and show nothing as to the cause of these changes.

TUBERCULIDS.

The presence of tuberculids, which are small, dark red papules, which often have a scaly apex, shows evidence of an active and usually of a generalized infection with tuberculosis. Their presence is of especial value, because they are most often found in just the cases in which the tuberculin test is negative, that is, in cases of acute miliary tuberculosis. They should be looked for, therefore, in all cases when this disease is a possibility. Their presence usually, but not always, indicates a fatal termination.

TUBERCULOUS INFECTION.

It is well known that new-born babies almost never show a positive tuberculin test. The test is almost always negative in young infants, but the proportion of positive reactions increases steadily through infancy and childhood, while

all adults give a positive reaction; that is, a steadily increasing proportion of infants and children become infected with tuberculosis. The important thing, therefore, is not so much whether they are or have been infected with tuberculosis, but whether the infection is or is not active. In this connection it has always seemed foolish to me to speak of a pretubercular stage. I have, in fact, never been quite certain what those who use this term mean by it, whether they mean a condition of malnutrition or increased susceptibility from some cause or other before tubercle bacilli enter the body or a period after tubercle bacilli have entered the body, but in which there is no active process giving symptoms. In either case it seems to me that the term is a poor one. A child either has or has not been infected with tuberculosis; therefore, he either is or is not tuberculous. If the infection is latent, he has no symptoms. If it is active, he has symptoms. We should, therefore, it seems to me, think whether a child has or has not been infected with tuberculosis, and, if he has, whether the infection is active or inactive.

The tendency of the majority of physicians is to consider that every child who is delicate or poorly nourished or has a continued fever is tuberculous. My experience is that tuberculosis is seldom the cause, when children are delicate or poorly nourished. A careful study of their parentage and of their diet and mode of life will almost always reveal the cause of the delicacy or malnutrition. In my experience, also, the least probable cause of a continued temperature in infancy and childhood is tuberculosis. Careful investigation will almost always show some error in diet, some disturbance of the digestive tract, some disease of the nasopharynx and accessory sinuses or pyelitis to account for the fever. Furthermore, many apparently well children that have a negative tuberculin test and in whom no evidences of disease can be found, have a temperature somewhat higher than what is ordinarily considered normal in the afternoon, especially if they have been excited or playing hard. In my experience, also, tuberculosis is a rare disease in infancy and childhood, both in private and hospital practice. I seldom see tuberculosis at this age in my office or consultation practice, except tuberculous meningitis and tuberculous peritonitis. In 1921, according to the report of the Children's Hospital, Boston, the diagnosis of tuberculosis in any form was made less than 100 times in something over 10,000 diagnoses in the Medical Out-Patient Department, unless 104 cases of cervical adenitis are all considered to be tuberculous. In the wards the diagnosis of tuberculosis in all forms was made only 36 times out of 822 diagnoses. These figures seem to demonstrate the relative infrequency of active tuberculosis in childhood.

TUBERCULOSIS IN INFANCY.

A tuberculous infection in infancy may be local, never cause any symptoms and never be recognized. Contrary to the general belief of a few years ago, a positive tuberculin test does not by any means condemn a baby to death. It is certain that many babies become infected with tuberculosis that never show any evidences of this infection, except a positive tuberculin test, or, at any rate, do not show any evidences of it until later in childhood or in adult life, when the infection may become active. Nevertheless, the tendency for tuberculosis to become generalized is much greater in infancy than it is later. When it becomes generalized, it may take either one of two forms, the acute miliary or what used to be called chronic diffuse tuberculosis. This term, which seems to me to be a good one, appears to have fallen into disuse during recent years. It describes better than any other term, I think, a condition which is common in infancy, but uncommon in childhood and adult life. In this condition there are tuberculous lesions in many or all of the organs, but the number is very much less than is the case in acute miliary tuberculosis. The baby consequently lives longer and the individual lesions have time to become larger than in acute miliary tuberculosis, although they may not give any more definite physical signs. The duration of chronic diffuse tuberculosis is, therefore, one of months rather than of weeks, as it is in acute miliary tuberculosis. A tuberculous infection in infancy, especially when it is of the chronic diffuse type, may give only the evidences of malnutrition with no localizing physical signs. It is wise, therefore, when a baby, that is reasonably well fed, and does not show any marked evidences of indigestion, does not gain properly, and shows other evidences of malnutrition, to suspect tuberculosis as the cause of its failure to thrive. Tuberculous bronchopneumonia is a very common form of tuberculosis in infancy. There is, as a rule, nothing about the onset to suggest that the trouble in the lung is tuberculous. Whenever the bronchopneumonic process continues localized for a long time in one spot, new spots continue to develop without the clearing up of the old, or the disease is of unusually long duration, tuberculosis should always be suspected. The physical signs do not differ, however, in any way from the physical signs of bronchopneumonia due to other organisms. Tuberculous meningitis is also more common in infancy than in childhood, because of this tendency to generalization at this age. While tuberculosis in infancy which gives definite physical signs carries a very grave prognosis, it is not, as we used to think, invariably fatal. Babies with recognizable tuberculosis not infrequently recover.

LOCAL TUBERCULOSIS.

Cervical Adenitis. It is often very difficult to determine whether enlarged glands in the neck are tuberculous or not. In general it is true that glands which develop rapidly after an acute infection of the throat are not tuberculous, while glands which come up slowly without any acute infection in the throat usually are tuberculous. There are, however, many exceptions to this rule. For some reason or other tuberculosis of the cervical lymph nodes does not tend to spread from them to other parts of the body. It almost always remains a localized infection. It would be presumptuous for me to say much about the treatment of tuberculous glands in the neck. It has seemed to me, however, that when they are enlarged it is wise, unless they are broken down, to first take out the tonsils and later to remove the glands. It is unwise, in my experience, to hope that tuberculous cervical glands will disappear of themselves.

Tracheobronchial Adenitis. The tracheobronchial lymph nodes are probably more often involved in tuberculosis in childhood than any other portion of the body. This involvement is shown by extension of the bronchial voice, whisper and respiration below the seventh cervical spine, D'Espine's sign, that is, a whispering sound heard after the spoken voice over the spinous processes of the vertebra, dullness on percussion below the seventh cervical spine and interseapular dullness. The enlargement is always considerable when there is interseapular dullness. It must never be forgotten, however, that these glands may be enlarged from other causes than tuberculosis. The finding of evidences of their enlargement does not, therefore, in itself justify the diagnosis of tuberculosis.

Pulmonary Tuberculosis. Tuberculosis of the lungs in early life almost always starts at the roots of the lungs and extends outward and downward. It very seldom begins at the apices. In infants and young children the distribution is very likely to be bronchopneumonic in type. It must not be taken for granted that every prolonged process in the lungs in infancy and childhood is tuberculous. As a matter of fact, such prolonged processes are more likely not to be than to be tuberculous. They are very frequently influenzal in origin. Such processes may persist for weeks or even months, and then clear up entirely. In my experience, cavities in the lungs in childhood are very seldom due to tuberculosis, because children, as a rule, die before cavities have formed. Cavities are usually due to a previous abscess of the lung, or more often to bronchiectases resulting from fibrous changes in the lungs due to a previous pneumonia which, instead of resolving, has organized. They are also sometimes due to chronic bronchitis or are the result of some congenital anomaly.

Abdominal Tuberculosis. There are three main types of tubercular peritonitis: the ascitic type, in which the peritoneum is studded with

miliary tuberculosis and filled with fluid; the caseous type, in which there are large masses of newly formed tuberculous tissue in the mesentery and omentum, with sometimes a small amount of fluid; and the adhesive type, in which the intestines are all bound together, and in which there is no fluid. The physical signs must evidently be very different in these three types. The prognosis is far better in tubercular peritonitis than was formerly supposed. Many cases recover. It is impossible, however, to tell in the beginning whether an individual patient will do well or not. Personally, I am opposed to operation, except in the ascitic form, when it has failed to yield to medical treatment and repeated tapping, and in the other forms, when there is obstruction. In my opinion the prognosis is as good, or better, under medical treatment than with operation. Incidentally, in doubtful cases, the demonstration of disease in the testicle is very strong evidence in favor of tuberculosis of the peritoneum.

There seems to be a good deal of misunderstanding as to the use of fat in the food in these cases. It used to be given routinely in order to improve the nutrition, but then we were told that, on account of the involvement of the mesenteric lymph nodes, fat could not be absorbed and consequently did harm. The truth of the matter is that in some cases the mesenteric glands are involved and fat cannot be absorbed, while in others they are not involved and fat can be absorbed. The only way to determine whether they are involved or not, is by an examination of the stools. If the stools show that fat is not absorbed, the fat should be cut out of the diet. If they show that fat is absorbed, fat should be given and pushed.

Tuberculosis of the mesenteric and retroperitoneal glands is not uncommon. It may give rise to acute symptoms, suggesting those of appendicitis or acute intestinal obstruction. This possibility should never be forgotten in the differential diagnosis of acute abdominal conditions in childhood.

Meningeal Tuberculosis. I know of no condition in which it is harder to make an early diagnosis than tuberculous meningitis. There is nothing characteristic about the early symptoms. Vomiting without evident cause, headache, and disinclination to play are perhaps among the earliest symptoms, but these symptoms are common to many other conditions. The only way in which a physician can always make an early diagnosis is to speak of it as a possibility whenever a child is sick and there is no very evident cause for the illness. I fear, however, that if a physician did this he would soon lose all his patients. It must not be forgotten that the flaccid type of tuberculous meningitis is almost, if not quite, as common as the type with spasm, rigidity of the neck and convulsions, especially in infancy. I have seen many cases of tuberculous meningitis

go through their whole course completely flaccid and with diminished or absent reflexes, and, in babies, even without bulging of the fontanelle. It is true that a very few patients have apparently recovered from tuberculous meningitis. The number of cases is so small, however, that we are not justified, it seems to me, in holding out any hope whatever of recovery in tuberculous meningitis. We must remember, however, that other conditions, such as syphilitic meningitis and encephalitis, may strongly resemble tuberculous meningitis in their symptomatology and that the findings in the cerebrospinal fluid in these conditions are the same, except for the absence of tubercle bacilli. There is always a chance for error, therefore, unless tubercle bacilli have been found in the spinal fluid.

I am confident that lumbar puncture has no curative action in these cases. In the spastic cases and in the cases with marked symptoms of cerebral irritation, lumbar puncture relieves them more, however, than any other method of treatment.

SURGICAL TUBERCULOSIS.

The physician must always bear in mind the possibility of surgical tuberculosis. He must remember that backache and pains in the legs may be due to tuberculosis of the spine. He must not forget that pains in the extremities are not always due to rheumatism, but may be due to tuberculosis of the joints. In fact, he should make the examination of the spine and extremities a part of his routine physical examination, in order that he may never miss conditions of this sort.

TREATMENT.

In my opinion the preventive treatment of tuberculosis is by far the most important. When tuberculosis has developed, the treatment consists of rest, food, fresh air, both day and night, and all the sunlight that there is. I have had but little experience with the Rollier treatment, but from what I have seen of it, I am convinced that it is very useful in tuberculosis of the bones and of the peritoneum. I have no confidence whatever in any drug treatment of tuberculosis, except for the relief of symptoms. I have had no personal experience with the tuberculin treatment. What I have seen of it, however, has been most disappointing, for it has seemed to me that it did more harm than good. My impression is that it is being used much less at present than it was a few years ago.

TUBERCULOSIS IN CHILDREN FROM THE STAND-POINT OF THE ORTHOPEDIST.

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

It is hard to know what to say at a meeting of this sort, speaking as an orthopedist, on a subject as general as this. You certainly do not wish detailed accounts of the local treatment of

bone and joint disease, and a few general statements of principle seem best to meet the need. The orthopedist has quite generally come to recognize that tuberculosis of bones and joints is due very largely to low general resistance of the individual. This being the case, we have two distinct features to observe in our treatment. One is to treat the part locally where the disease manifests itself, and the other is to see that everything is done that is possible to improve the general condition of the individual. The time was when the wards of our children's hospitals were filled with patients having hip or spine disease where the entire emphasis was put upon the treatment of the local condition. We have gone far beyond that point. The general treatment should receive at least equal attention.

It seems to me that we can pass over the local treatment by saying that in tuberculosis of the bones or joints, the things that the orthopedist aims to do are first to prevent deformity, or correct deformity if it has already occurred, and second, to put the part in the position of physiological rest—then allowing function in so far as the part will tolerate it. Anything that the individual can do with a diseased part (the individual, not someone else) we need have very little fear of doing harm. If the child can walk about once, the part is properly protected—let him walk about. If it is very acute, the child will instinctively not walk about. As fast as the child is able to use that part, it is to be encouraged. Use stimulates circulation, encourages bone repair and does the very thing we ought never to lose sight of—which is to stimulate the cells about the diseased portion, so that they will be stronger and able to control the disease rather than to weaken those parts by too great inactivity.

For the general condition the things which we are now doing have for their purpose the increasing, in so far as is possible, the general resistance and therefore the more perfect control of the local manifestation of the disease. This applies not only to tuberculosis, it applies to all sorts of infections,—the principles are practically the same. The thing that has helped us most in this connection and has given us something that we can speak about definitely because it is easily checked, has to do with the way the diaphragm is used. It seems to me that this is one of the most important single features of the physiology of the human being. If the diaphragm is down at the level of the twelfth rib and does not move—the circulation of the abdominal organs must suffer. Normal respiration involves the diaphragm and the normal circulation in the abdomen demands the same thing. Ideal respiration means the diaphragm high with slight movement of the chest—slow respiration and slow pulse. The diaphragm not only helps in the respiratory development, but it also pumps the blood from the abdomen and

the legs back to the heart. There is no other mechanism to accomplish this. With the diaphragm low, the circulation as well as the respiration will be interfered with and the general vitality will suffer.

Until you get the diaphragm so that it acts freely, you have not done all that you should do to improve the general resistance of the individual.

In trying to build up your individual to the best health—in trying to bring up their reserve so they can avoid tuberculosis—you have tangible things which you can check. Certainly there is more than just the microscope or the stethoscope in understanding these conditions.

Training for this physiological test is the sort of thing our preventiva should be doing. Get the children to stand properly. They will look better, but they will be more normal physiologically, and have greater resistance to tuberculosis or any other disease.

TUBERCULOSIS IN CHILDREN FROM THE STANDPOINT OF THE INTERNIST.

By HENRY D. CHADWICK, M.D., WESTFIELD, MASS.

IN considering the subject of tuberculosis in children it is necessary to divide them into groups as this disease varies very much in its manifestation according to the age of the child. There are three distinct types of tuberculosis in children:—the general or infantile, the hilum or juvenile, and the apical or adult form.

The infantile form in its primary stage assumes the characteristics of an acute, infectious fever, and progresses rapidly to a fatal termination, as general miliary tuberculosis, meningitis or bronchopneumonia. This is the usual course when infection occurs before the age of two years. From this age on the cause of infection is gradually modified by the production of a steadily increasing immunity. The tissues gradually acquire the power to react and the bacilli become fixed in the lymph nodes or more rarely in the epiphyses of the long bones or in the bodies of the vertebrae. After children have reached the age of five they rarely develop the infantile type of tuberculosis.

From five to twelve the lymphoid type of tuberculosis largely predominates. This period is a golden interval of low mortality between the infantile form on the one hand and the adult pulmonary form on the other, both of which have very high death rate. This tendency to focalize in the lymph nodes is the outstanding characteristic of juvenile tuberculosis. This was very apparent a few years ago when cervical tuberculous adenitis was such a common affliction in the children that came to the surgical outpatient departments. It is not so today largely because of the activities of the throat specialists in removing adenoids and diseased tonsils. Also the dentists must be given some of the credit because of the progress of dental hygiene.

Only comparatively recently, however, has the rôle of the tracheo-bronchial or hilum glands been given serious consideration in relation to the tuberculosis problem. As the lymphatics of the throat drain into the cervical glands, so the lymphatics of the lungs converge at the hilum and drain the entire pulmonary area into the tracheo-bronchial lymph nodes. There is this important difference however; the cervical glands only drain a small region, the tracheo-bronchial lymph nodes become the converging point of all bacilli that reach the lymphatics of the lungs, either by inhalation or through the pulmonary circulation that may take up infection from any part of the vascular system. There is, therefore, little chance for this group of glands in any individual to escape infection as long as tuberculosis is the universal disease that it is today. Fortunately the bacilli are so few in number or they are low in virulence or the individual's immunity is sufficient to prevent active disease in 70% of the people.

Pathologists are not yet in agreement as to whether the first lesion occurs in the lungs or in the tracheo-bronchial nodes. Krause has demonstrated that animals inoculated with tubercle bacilli exhibit foci of tuberculosis in the tracheo-bronchial nodes even when the lungs are free from disease. Furthermore, we do know that whenever the lungs show a tuberculous lesion that the tracheo-bronchial nodes are always involved. Most important of all to us is the fact that tuberculosis can be demonstrated in the glands of the hilum before any pulmonary lesion is large enough to be recognized by any method of examination now available.

Apical lesions or the adult type of tuberculosis rarely occur before the age of twelve years. After this age it is met with increasing frequency until the sixteenth year, when it becomes the usual type. The juvenile form after this age is rarely found as active disease. The healed hilum lesions are, however, often seen by x-ray or post-mortem in adults.

It is most important to recognize hilum tuberculosis when it is confined to the lymph nodes because this tissue has a tendency to keep the focus circumscribed. The resistance to tuberculosis between the ages of five to fifteen is greater relatively than at any other age period. Arrest or cure can reasonably be expected if proper treatment is carried out at this time.

There is a transition period due to the developing immunity between the ages of two to five, when either the infantile or juvenile type of tuberculosis may prevail. It is a dangerous period in an infected child's life. The disease is masked more completely than it is at later years. The child is usually well developed and nourished and of good color. Localizing symptoms may be delayed and there ensues an anxious period when the physician is puzzled to know

the cause of the occasional reoccurring febrile attack. Is it due to tuberculosis, and if so will the tubercle focalize in the head of a long bone, in the vertebral column, in the peritoneum, in the intestines or in some group of lymphatic glands? Those are some of the questions that a clinician has to answer.

Again we have another dangerous transition period after the child passes the age of twelve. Something as yet unknown to us occurs during the age of adolescence that influences the course of tuberculosis. The cases one sees of involvement restricted to the region of the hilum become fewer and the number of apical or adult type of tuberculosis increases as the patients approach the age of sixteen. It occasionally happens, but it is extremely rare to find a case of active hilum tuberculosis in an adult without apical lesions.

Juvenile tuberculosis involves the lymphatic glands at the hilum and the adjacent peribronchial tissue in its early stages. If the disease progresses the deep parenchymatous tissue between the trunks of the bronchial tree becomes invaded by infiltration. There may be peribronchial thickening with beading along the trunks that extend into the second and third interspaces.

Adult pulmonary tuberculosis involves the apices and the peripheral parenchymatous tissue. If one bears in mind this difference in the pathology of the two types of disease it will aid materially in diagnosis. The physical signs are different because in one the focus is superficial and in the other it is deep. Furthermore, in one the alveolar structure of the lung is involved and in the other the lymphatic tissue. Auscultation therefore does not give any positive information in early tracheo-bronchial tuberculosis. As the disease progresses and invades the deep parenchyma and peribronchial tissue changes in the breath sounds are sometimes heard in the infraclavicular triangle and along the vertebral border of the scapulae. Râles are not heard in hilum tuberculosis; the structures in which râles are produced, namely, the smaller bronchi and alveoli, are not involved until the pulmonary or adult type of tuberculosis is developed. If râles are numerous in any part of one or both lungs of a child from five to twelve they are probably due to some non-tuberculous infection, such as bronchitis, asthma, bronchopneumonia or abscess. If the râles are due to pulmonary tuberculosis, it is a case in the advanced stage, which fortunately rarely occurs in children of this age. One should not expect to elicit râles in early juvenile tuberculosis; when heard they should be regarded as negative evidence and should be considered due to non-tuberculous causes unless enough positive signs and symptoms of tuberculosis are present to justify such a diagnosis.

Percussion, however, is of great value in determining consolidation at the root of the lung. One must develop a careful technic to be of serv-

ice in revealing changes in the deeper structures of the lung. The child to be examined should be standing with shoulders slightly sloping forward with all muscles of the shoulder girdle in complete relaxation. Light percussion must be used with dependence for values placed more upon the tactile sense than upon the sound produced. It is always better to begin from below and progress upward. The reason for this is that the bases are seldom diseased and one can in this way perceive the normal resonance first for a standard and thus more easily detect any abnormal changes in the upper part of the lung. It should also be borne in mind that in children with active tracheo-bronchial nodes disease there is a reflex condition that tends to produce a chronic spasm of the muscles covering the upper part of the thorax posteriorly. This may be sufficient to change the percussion note enough to simulate dullness due to tuberculous infiltration of the apices. As a check, however, upon such an erroneous interpretation, one finds in such cases that the resonance is normal over the apices anteriorly and râles are not present.

SYMPTOMS.

In making a diagnosis in children great significance must be placed on symptoms which are an evidence of tuberculin toxemia. In the order of importance these symptoms are fatigue or weakness. This is the first and most frequent of symptoms of onset. It is exhibited often as a change of disposition. A sunny, happy child becomes nervous and fretful, or an active, energetic one becomes languid and listless. Games no longer interest them and school work that was formerly enjoyed becomes a hardship. Light mental or physical efforts tire. Lack of appetite, failure to gain, or—more significant—loss of weight; tendency to profuse perspiration; fever. In hilum tuberculosis the toxemia does not produce continuous fever. It occurs only after unusual exercise or fatigue from any cause. It is transitory. An afternoon temperature that does not go above 99.6 may be considered within the normal limits. A temperature of 101 or more is usually due to some non-tuberculous cause. It should be remembered that tuberculous disease of the lymph nodes or pulmonary tissues when not accompanied with pyogenic infection does not produce a marked rise in temperature. A purely tuberculous disease produces only a low grade of fever and then only when an increased amount of tuberculin is absorbed, as a tuberculin tolerance is gradually acquired. We must not, therefore, consider the absence of fever to contraindicate juvenile tuberculosis. Febrile attacks are infrequent, long fever-free periods are the rule.

A child's pulse is so erratic and normally so much higher than in adults that it is of no value in early diagnosis.

TUBERCULIN TEST.

We have found the intradermal tuberculin test so much more reliable than the Von Pirquet cutaneous method that we are using it exclusively. Absorption is certain and the dose accurate in each case. We give .01 m.g. of tuberculin intracutaneously for the first dose. If there is no reaction a second dose of 0.1 m.g. is given.

PREVIOUS HISTORY.

The exposure of a child to tuberculosis in the home, if long continued, is evidence of great weight in so far as it indicates the probability of massive and frequent infection. Such a child should be provided with excellent hygienic surroundings and care, even if there are no symptoms of disease. The lack of family history, however, as regards exposure to tuberculosis in the home, is of little value and should have no negative weight in diagnosis if there are definite signs and symptoms of disease. Out of a series of 200 children in our care 34% gave no history of intimate contact with any case of tuberculosis in the home.

DIAGNOSIS.

The points upon which a diagnosis of juvenile tuberculosis must be based are these:—

1. History of frequent colds or predisposing causes such as measles, whooping cough, and influenza. These diseases lessen the resistance to infection and tuberculous disease frequently follows in their wake. Also the frequent association of phlyctenular disease and serofuloderma with hilum tuberculosis should always be kept in mind.
2. Symptoms of tuberculin toxæmia, viz.—fatigue, malnutrition, anorexia, febrile attacks.
3. Exposure to tuberculosis in the home.
4. Positive cutaneous tuberculin test.
5. Evidence of enlarged tracheo-bronchial lymph nodes and infiltration or thickening of the adjacent tissues as demonstrated by physical signs and confirmed by roentgenogram.

In conclusion I wish to emphasize the point that juvenile tuberculosis is a manifestation of primary tuberculosis, apparent only in the lymph nodes and deeper tissues at the root of the lung. The adult type is a manifestation of tuberculous disease involving the superficial parenchymatous and peribronchial tissues of the lungs. The tissues involved are radically different in structure. The way in which they react to disease is distinctive. Therefore when we examine the chest of a child we should not expect to find râles and other signs of pulmonary tuberculosis. We should look carefully for evidence of bronchial adenitis. When we find enlargement of the bronchial lymph nodes with thickening of adjacent tissues, accompanied by symptoms of a tuberculin toxemia, together with a positive intracutaneous test, a diagnosis of hilum tuberculosis should be made.

TUBERCULOSIS IN CHILDREN FROM THE STAND- POINT OF THE SURGEON.

By LLOYD T. BROWN, M.D., BOSTON.

IN dealing with such a subject as Surgical Tuberculosis one finds himself confronted with problems, the solution of which is very difficult. There are many points to be touched upon, any one of which could well occupy the entire time of such a gathering as this. It is out of the question to discuss all the forms of non-pulmonary tuberculosis and I shall leave to people better qualified than I the question of the glandular forms, such as tubercular cervical adenitis, tubercular peritonitis, etc. Perhaps the first and the most important point to be mentioned is that surgery in tuberculosis must be approached with a very different point of view than in almost any other condition. We long ago learned that it is impossible to entirely eradicate by any surgical procedure all of the tubercular process, but we have also learned that if the proper after-care can be given it is not necessary to entirely remove the focus. Therefore, it can be seen that the surgical procedure in itself is only an incident in the treatment of the disease and that the real problem is not the operation, but what facilities can be found for the proper preoperative and post-operative care of the patient.

In order to emphasize this fact that the surgical treatment of tuberculosis, referring to bone tuberculosis, is in reality a very small part of the treatment, the following figures are quoted from the last three annual reports of the Children's Hospital:—492 cases of bone tuberculosis were admitted to the wards because care at home or in the Out Patient Department had not sufficed. Of these 492 cases, only 55 cases were operated upon, all but 4 of which were for simple drainage of abscesses or similar procedures. These four exceptions were operated upon for spinal immobilization.

The question of the incidence of bone tuberculosis was also a difficult problem and one at the present time impossible to answer. Although a law has been in existence since 1907, requiring the reporting to the State of all cases of bone or non-pulmonary tuberculosis, the physicians and hospitals of this State have neglected this duty so completely that there are no such statistics available for the non-pulmonary as there are for the pulmonary cases. Hospital reports give most inadequate information on the total number of cases in the State, but are very surprising in showing the number of cases which do come to the clinics. As quoted above, in three years 492 cases entered the wards of the Children's Hospital. At the Massachusetts General Hospital the Orthopaedic Department during the years 1920-21 treated 291 cases of bone tuberculosis, 81 of which were children and 210 adults. Of these cases, 79 adults and 25 children had tuberculosis of the spine. Of the 192 Children's

Hospital cases 243 were tuberculosis of the spine. Tuberculosis of the hip was next in frequency of occurrence at both hospitals. At the Massachusetts General Hospital 41 adults and 34 children, and at the Children's Hospital in three years 161 cases of tuberculosis of the hip were recorded. Knees were next in frequency, and the remaining cases were scattered all over the body. Since, as mentioned above, the time allotted to this paper is so short, it is impossible to deal with more than one condition. Therefore it is considered advisable to take up that condition which at the present time is most frequent in occurrence and which from force of circumstances in the majority of hospital cases is very inadequately treated in both children and adults. I refer to tuberculosis of the spine. That the occurrence of tuberculosis in the spine is the most common site of bone tuberculosis is shown by the above figures and also by figures found at the Rizzoli Orthopaedic Institute in Italy, where from the years 1907-1919, 45.5%, or 1271 out of 2790 cases of bone and joint tuberculosis, were in the spine.

The bacteria responsible for this condition are, of course, the tubercle bacillus of either the bovine or human form. When it is considered that 25 to 40% of the milk producing herds in Massachusetts show positive tuberculin reactions, the recent passage of the law by the Legislature which allows the State to make use of Federal Aid in cleaning up our herds, is a matter of great importance. In New York City, where the control of the milk situation is very carefully carried out, the results have been marked. A recent letter from an orthopaedic surgeon at the Hospital for the Ruptured and Crippled in New York says that twenty-five years ago the tubercular cases were the most common ones in the clinic, while at the present time they are among the least common.

The most valuable and careful work that is being done throughout the state in educating the people how to prevent infection from tuberculosis cannot be too highly endorsed, and it is the duty of every physician to further the cause in every way possible. Since, however, there will always be a certain number of cases to be looked after, it is of the utmost importance that the methods of treatment which tend to give the best functional results should be understood and carried out by all.

Here is a photograph showing the results in three girls of the treatment that has been used in this country for many years. This treatment is the supportive and ambulatory method. By this is meant recumbency as long as there are any acute symptoms; after this, plaster jackets and braces and allowing the patient to be up and around. Two of these girls had their spines immobilized by the operative method of putting a section of their tibiae into the spinous process, the so-called Albee operation. The result is what you see here. Any other form

of treatment was impossible in these cases because there were no places where recumbency under proper supervision could be carried out. That recumbency at home in the average hospital case is impossible can be seen when one finds in the hospital records such notes as this: "Patient comfortable on frame. Mother says she finds the child crawling or walking around with the frame on its back."

If the ambulatory treatment gives such results, what then is the ideal treatment we should all strive for? The literature at the present time is filled with articles about this problem. It must be remembered that tuberculosis in a child or adult is a serious condition, and although the patient may become free of symptoms with two or three months of recumbency or after an operative immobilization of the spine, this does not mean that the disease has been cured. If one follows these cases for a period of years a recurrence of the condition is very commonly found years afterwards, and what is still more important the tubercular infection may recur in another part of the body.

The method of treatment advocated by such men as Sorrel and Calvé at Berc-sur-Mer in France, where there are two hospitals with a capacity of more than 2,000 beds just for the city of Paris alone, must be considered with great care. Rollier, the strongest advocate for heliotherapy, or the sunlight treatment, also gives us much food for thought. Recent letters from Canada and New York from men who are dealing with these conditions all practically agree as to the ideal treatment.

This treatment differs in children and adults. In children the bones are soft and rapidly growing. The disease tends to destroy the vertebrae and the intervertebral disc. The process of healing consists in the calcification or laying down of lime salts in the diseased areas. This process is a very slow one, requiring months or years. Although all painful symptoms may rapidly disappear with recumbency, the pathological process is still present, and if the child is allowed up, even with the supportive jackets or braces, the superimposed weight tends to cause pressure on the slowly healing pathologic process and the result is either a recurrence of the symptoms or, as in the cases shown, an increase in the deformity. The operative immobilization of the spine in children, as brought out by the investigation of the commission appointed by the American Orthopaedic Association to look into this subject and as seen in these two cases, does not in itself prevent further deformity.

It is our belief, therefore, that in children a period of recumbency either on a frame or in a plaster shell should be carried out for 2-3 years, preferably 3. This means that during this time there should be no superimposed weight on the spine, such as comes from sitting or standing up. At the end of this time, if the x-ray picture shows signs of new bone formation and there are

no signs of acute disease, the child may be allowed very short periods of being up, provided the spine is given sufficient support. At least two years more of gradually increasing weight bearing is necessary before it is safe to allow complete freedom, and some men think supports should be worn until adult life. With such a plan of treatment we should expect to be able to prevent such deformities and such cripples as these. And let me add here that these three are only a very small proportion of the number coming to our hospitals and Cripple School. This may seem like a very long time, but these children here, like almost all the others of their kind, are still coming to the hospitals for treatment and are still wearing braces 12 to 15 years after their treatment was started.

In the adult cases conditions are different. We no longer are dealing with growing bone and we are dealing with a group of cases in which the time element is of great importance. For this reason if anything can with safety be done which will shorten the time element, it is advisable. With our desire to shorten the time element, however, we must not forget, as Calvé says, that an adult with Pott's disease is tuberculous with a grave focus and is liable to develop other foci of the same nature, and that the general treatment is the main thing.

It has been stated, and experience has proven it to be so, in selected cases, that a stabilizing operation on the spine, either the fusion operation as described by Hibbs, or the bone graft of Albee, or the bone periosteal flap method of Delagenière, may be a successful procedure. The selection of cases, however, is very important. A series of cases at the Massachusetts General Hospital has brought out the fact that nearly half of the cases operated upon had more than one tubercular focus. In some it did not develop until five years after the operation and in others it was discovered first. Any case with an acute or even subacute pulmonary condition is a poor operative risk. One such case developed a rapidly fatal miliary tuberculosis after the operation. Such possibilities as two separate and distinct foci of disease in the same spine must be considered. This occurred six times in a series of 29 cases at the Massachusetts General Hospital.

As has been said before, however, the operative treatment which is distinctly inadvisable in children, must be considered merely as an incident in the treatment of the adult. With or without the operative treatment, heliotherapy and recumbency, which means the removal of all superincumbent weight on the spine, are the most important features. Without operation, recumbency is necessary for at least a year, and this is followed by a jacket or brace for two to three years more. With operation, the time of recumbency may be shortened to six months, but the jacket or brace support should be worn for a year or two. Some patients report that they are still

wearing it for four or five years after the operation because they feel safer.

With these necessities for treatment in mind, what are the facilities throughout the state for affording such treatment? At the present time there is not a single state or city institution which is properly equipped to carry out effectively such treatment. There are one or two private charity hospitals or homes which are able to take a few children, but practically no adults. There are some institutions which are willing to take a few such cases, but their equipment and personnel is such that they do so largely under protest. It is for this reason, gentlemen, that our results in the treatment are not what they should be. Rollier in 1913 reported 86 per cent. cures in 198 cases, but there are few people of the total number afflicted with spinal or bone tuberculosis who can afford the luxury of such a place as Rollier's. DeBrumer in 1921, speaking of the results in patients who were treated under the most unfavorable home conditions, says the mortality rate was 42 per cent. Although he gives the mortality rate as 42 per cent., he says nothing about the cases such as those which are still drifting into our clinics after 12 or 15 years of treatment, and who, from the economic point of view, are such a tremendous loss to the community.

In conclusion I should like to bring out certain points:

1. That at present we have no accurate statistics in this state as to the number of non-pulmonary cases of tuberculosis, and that this lack is due to the physicians and hospitals of the state failing to report their cases. This can and should be corrected.
2. That surgery in tuberculosis is and should be the exception, and that it should always be made only an incident in the general and necessarily prolonged treatment.
3. That in children operations for spinal immobilization are not advisable and without the proper postoperative care in adults do not give the results claimed.
4. That in tuberculosis of the spine in both children and adults the ambulatory and supportive treatment has not given satisfactory results.
5. That in children the ideal treatment is recumbency for at least two to three years, followed by carefully observed and protected weight bearing for two years more.
6. That in adults in selected cases the operation for spinal immobilization may be advisable if it can be followed by at least six months' recumbency and a year or more of supportive treatment.
7. That there are no hospitals in the state with an equipment or a personnel which can adequately carry out the proper prolonged treatment of recumbency and heliotherapy.

8. That it is the duty of the medical profession of this state to urge our legislature to provide as adequate opportunity for the treatment of non-pulmonary tuberculosis as is provided for the pulmonary cases.

THE X-RAY IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.

BY SAMUEL W. ELLSWORTH, M.D., Boston.

It is not proposed to describe the technical details of the use of the x-rays by means of the fluorescent screen and radiogram, but rather briefly to indicate some of the possibilities and limitations of this method of examination in the study of tuberculosis of the lungs.

The screen serves best in observing the movements of the thorax, diaphragm and heart during respiration.

The film or plate gives a permanent record of the details of light and shade.

The stereoscopic films afford perspective vision and position of shadows.

The lung fields, distended with air, offer but slight resistance to the passage of the rays and present a brilliant background for the study of the more opaque tissues. The depth of the shadows cast is dependent upon the density and mass of the structures traversed by the rays.

We have, then, a remarkably accurate means of detecting the presence or absence, the position, extent and the character of pathologic conditions in the lungs. Pathology is represented by abnormal densities shown on the film or screen, and no other means have been found which will give nearly so accurate a picture of lung pathology during life as the x-ray film.

Slight abnormalities in density require careful study to detect; the gross lesions are often easily observed. Both types demand especial discrimination to determine the probable etiology.

There are but few diseases which justify a diagnosis from the x-ray observations alone. Interpretation of the x-ray findings demands a careful analysis of the data observed; definite diagnosis or etiology can be made only by a coördination of the history, physical signs and symptoms and laboratory data.

It is necessary to emphasize that x-ray observations concern not merely one spot of density, but rather the entire lung fields, the level of the diaphragm, the excursions during respiration, as well as the position and movements of the heart.

If we accept the statement that every lung shadow may represent one of many pathological lung lesions, the necessity of careful differentiation is obvious.

Doubtful cases may require repeated examinations; this is especially true in many cases of early pulmonary tuberculosis. To appreciate the early and slight lesions of tuberculosis requires

some degree of familiarity with the normal lung picture, and the denser shadows should be identified with the gross specimens and sections from the post-mortem table.

Tubercular infection in some form occurs with such frequency, that it is now recognized as an almost universal condition.

The suspected or doubtful case is the great medical problem, where the delayed or uncertain diagnosis fails to impress the patient and measures to control are neglected until the disease is well established. Not infrequently the x-ray will disclose other conditions, such as heart disease, rather than the suspected tuberculosis, or, on the contrary, no evidence at all of pulmonary lesion.

The x-ray examination as an accessory to, and combined with the clinical examination, enables one to make an earlier diagnosis in many doubtful cases of disease of the chest, with an accuracy not obtained heretofore, and in my opinion, no medical examination can be considered as completed which has neglected this method of examination.

DISCUSSION.

DR. EUGENE R. KELLEY, Boston: I think we will all agree that this is perhaps the most interesting session of the Tuberculosis Section for several years. I think the officers of the Section are to be congratulated on the happy expedient they struck of having a symposium on some of the more interesting phases of tuberculosis in children.

I want to say two or three words on points that interested me very much in the papers presented this afternoon. I wish to reiterate what Dr. Brown brought out in reference to the very poor reporting of non-pulmonary cases of tuberculosis. It is an old subject with the State Department of Health and probably we are very much to blame for it not being better reported. But frankly, we have been at a little bit of a loss as to how to bring about better coöperation. The medical profession has responded very well, I think, on the reporting of pulmonary tuberculosis.

If you look back over the statistics, you will find in the year 1915, when there was a resolve passed looking into the question of facilities for non-pulmonary cases, there was very much better reporting than there had ever been before or since. The reporting of non-pulmonary cases is one of the things that needs to be brought to the physician's attention. Another thing that accounts in a considerable degree for poor reporting is the failure on the part of institutional authorities to realize that the legal obligation rests the same on them as on the individual physician to report a case. It has happened in four large institutions a few years ago you could collect off their records more cases of non-pulmonary tuberculosis than were reported in the whole State. Of course, the answer to that is that the institution men leave it to the family doctor, who knew the case before it went to the institution, to make the report. The law puts the same obligation upon the institution as upon the physician.

I was also very much interested in the percentages that Dr. Morse gave, of diagnoses at the Children's Hospital, in the house service. It is a rather curious coincidence—the percentages, as I roughly calculate them, being about 8 per cent. That is just about the percentage of diagnoses that we are making in the special examination clinics for children which we are holding in various parts of the State. The point

is that both of those groups represent a sort of preliminary rough sifting process. In the hospital, they are there because they are sick. In the groups as taken in the special field clinics, they are selected because they have shown some of the obvious symptoms that Dr. Chadwick laid stress upon. They are all school children, who are picked out as the obviously underweight, very much fatigued, or the children who were showing both those symptoms plus an inability to keep up in their school work.

The statistics of diagnoses made to entire number of children seen for the Out-Patient Department service of the Children's Hospital struck me as being poorer than they theoretically ought to be. Probably they cannot adequately diagnose tuberculosis in children when they see it before them in the Out-Patient Department service at that institution or any other institution's out-patient department. That is inevitable. It would be impossible under those conditions to establish positive diagnoses in these cases, where it could be done under more favorable conditions for longer observation.

DR. RICHARD H. MILLER, Boston: I have been very much interested in tuberculous cervical glands, and am glad to say just a few words. I have had the privilege for a long time of working with Dr. Bartlett in the non-pulmonary tuberculosis clinic at the Massachusetts General Hospital, where we have seen hundreds of cases of enlarged cervical glands. In the first place, I agree with Dr. Morse that it is, at least at the outset, a local process. We think that it seems to confer a certain amount of immunity, and that pulmonary tuberculosis is not common in those who have cervical tuberculosis.

There has recently been some work done in investigating tuberculosis of the lungs, more especially the apical pleura, by x-rays, to determine whether tuberculous infection can come in through the tonsils and adenoids and via the cervical glands to the apex. Certain men have drawn conclusions as a result of these x-ray examinations that that is possible, and is not uncommon. The anatomy of the cervical lymph glands does not, in our opinion, make that possible, because they do not drain to or very near to the apices of the lungs, but into the jugular trunk, which empties into the vein on the right and into the thoracic duct on the left.

Dr. Morse says that the one treatment *par excellence* for these glands is surgery. Our conclusion has been that surgery is not primarily the treatment of choice. Surgery is a thing that must be put off until you have tried other things, though acute fluctuant abscesses must be operated on. The average case of tuberculous glands should not at once be handed over to the surgeon, and though our business is surgery, we do not believe in it to the exclusion of other methods.

Certain writers have recently said that the x-ray will cure most of them, but in our experience it will cure only a few. We have been working a certain amount with artificial light, the mercury vapor quartz lamp—the so-called Alpine Sun Lamp. This does a great deal of good, especially when there are discharging sinuses, and we have just this spring had several most remarkable results with it.

We have also used for a long time tuberculin, and we are perfectly convinced that in a fair number of cases it does a great deal of good. We have seen certain cases in which the glands absolutely melt away under tuberculin. The difficulties of its use are that a lot of people do not understand it—they give too much—they may give too little, or the patients do not follow treatment conscientiously. Tuberculin carefully given and conscientiously followed out, supplemented with hygiene, and perhaps with the Alpine lamp when it is deemed wise, and heliotherapy, will cure a good many cases. I think it is an im-

portant thing to bear in mind that surgery is not primarily a proper way to treat tuberculous glands of the neck.

Dr. S. A. Knorr, New York: I want to thank you, Mr. Chairman, for calling on me. I consider myself one of the most fortunate individuals in the world. I came to Boston on an entirely different errand, and now I am treated to a lesson in tuberculosis. I have learned already much that was worth coming for. I feel at a loss to know what I can offer to you that has not been presented to you before or that will not be offered to you later. Still, since my friend of many years, your distinguished Chairman, Dr. Otis, has asked me to address you, I will venture to discuss something which might perhaps deserve the name of being new. I have spoken of it before and have called it "A Physiological Adjuvant in the Rest Cure of Pulmonary Tuberculosis."

Ever since Dettweiler devised the rest cure in a reclining chair in the open air as a means of accomplishing the cure of pulmonary tuberculosis, the idea of exercise in the open air as a therapeutic measure in tuberculosis has been abandoned by the majority of physicians. Many attempts have been made by numerous experimenters to add local rest for the tuberculous lung to the general bodily rest treatment. Denison and Sewall suggest mechanical restrictions by means of adhesive plaster or belts. All report good results. I believe you can accomplish something, but not a great deal. Of course, with the advent of artificial pneumothorax, we thought we had realized the ideal in putting the infected lung at rest. But, alas! we cannot get in every time. There is a vast difference of opinion as to the advisability of artificial pneumothorax in all cases. I, for one, cannot advocate it in all cases. We have the pleuritic adhesions to overcome. The operation devised by Jacobaeus, who, with the aid of a thoracoscope and a long cantery protected by a cannula, divides the pleuritic adhesions, may help to diminish the number of cases which have heretofore been considered unsuitable for artificial pneumothorax. In dividing the pleuritic bands with the bistoury or even with the electric cantery, there will always be some danger of coming across very vascular adhesions or such extensive ones that there may be danger of hemorrhage and rupturing the lung. The operation has thus far yielded a rather high mortality so that it must be restricted to a very few cases.

Comparative physiology teaches us that the slow breathing animals are less susceptible to tuberculosis than the fast breathing ones. The horse breathes only 8 to 10 times a minute—the cow 15 to 20 times. The turtle breathes so imperfectly that you cannot perceive it. This, at any rate, impelled me to make a study of restricted diaphragm breathing. I tried it on myself first. To my surprise, I found I could very comfortably breathe and exist with six and eight respirations a minute, limiting them to the diaphragm. Still, I was coward enough not to publish anything until I had some authority. I consulted Prof. Lusk, of Cornell, and asked him if there was any danger of my increasing the accumulation of carbon dioxide. He wrote me that it would not do any harm; that if I had too much carbon dioxide, nature would call for more oxidation. Through the courtesy of Prof. Lusk, I was permitted to make some spirometric tests at the Russell Sage Institute. One of his assistants kindly lent himself to the experiment. After I had demonstrated to him how he could diminish the number of respirations to five per minute, and limit them to the basal portions of the lungs, he was surprised to find with what comfort he could do it, and thought he could do it indefinitely. I found he took in more air than ordinarily. In ordinary respiration, his tidal volume was 600 cc. per respiration. I observed that the volume of tidal air in-

creased considerably while he was lying in a recumbent position, breathing through the tube of the spirometer. I tried it on patients. I did not publish anything. I made my report to the Surgeon General of the U. S. Public Health Service, to which I am attached. It was returned with approval. The results were these: In advanced cases, I noticed, after a few months' trial, a tendency to fibrosis. In the moderately advanced cases, I noticed a decrease in pulse rate and a decrease in cough.

In conclusion, two observations—one on hemorrhage, the other on psychology. Two patients of mine who had had bloody expectoration and who stated that it always lasted many days, assured me that this quiet and diminished breathing shortened the usual duration of their blood spitting considerably. I had one man, a very intelligent gentleman, whom I had advised to use this restricted diaphragmatic breathing. After twenty-four hours he sent a messenger to me asking me to come at once, that he could not stand it any longer. I could not go at once so I sent my assistant. He came back and said the man was very unhappy and he thought I had better go and see him. I went as soon as I could. The patient said to me: "Ever since you told me I should restrict my breathing I am a most unfortunate individual; I am unhappy; I cannot stand it any longer." I said: "You take deep breaths any time you want to. I did not mean to stop you from breathing deeply." The next time I went he said: "Ever since you told me I could take a deep breath I do not feel the need of it any more."

Try it on yourself and your patients. I hope you will have the same success, and better, than I have had, but, as your distinguished townsman has told you, it is an important thing to take all things into consideration. As you all know, the majority of tuberculous lesions are confined to the upper region of the lungs. By giving them a rest you will be surprised how much good you can do your patient—and to do good is our calling.

Original Article.

AN INVESTIGATION OF THE RELIABILITY OF LABORATORY TESTS AND A DISCUSSION OF TECHNIQUE OF LABORATORIES IN AND NEAR BOSTON.

(Continued from page 446.)

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PART 2.

WAS-ERMANN TESTS — A COMPARISON OF REPORTS FROM SEVERAL LABORATORIES ON IDENTICAL SPECIMENS.

The method first adopted for comparing Was-ermann tests was to pool the left-over serums from positive, negative or doubtful cases and then divide into a sufficient number of specimens to supply the laboratories. The first series had two positive, two negative and two doubtful specimens.

Here there is complete agreement on strong positives and on straight negatives. Border

WASSERMANN TESTS—FIRST SERIES.

Lab.	Specimens.					
	1	2	3	4	5	6
1	—	+	+	—	—	—
2	Doubtful	—	+	—	—	Broken tube
3	—	+	+	—	—	—
4	—	+++	++++	—	—	+++
5	—	+	+	—	—	Mod. Pos.
6	—	+	+	—	—	—
7	—	+	+	—	—	?

line serums receive reports varying from positive to negative, depending, probably, on the strength of the hemolytic system used.

WASSERMANN TESTS—SECOND SERIES.

Lab.	1	2	3	4	5	6
1	+	—	Uns.	Doubt	Uns.	—
2	+	—	+	+	+	—
3	+	—	hem.	hem.	+	—
4	a. c.	—	a. c.	a. c.	a. c.	—
5	+	—	—	—	+	—
6	+	—	+	Doubt	+	—
7	+	—	a. c.	a. c.	+	—

Serums No. 1 and 5 were identical from pooled positive serums. Laboratory No. 1 reports 1 positive and 5 unsatisfactory. Laboratory No. 4 reports both anticomplementary, and inquiry indicates that Laboratory No. 4 is using an insufficient dose of complement.

Serums No. 2 and 6 from pooled negatives all agree upon. Serums No. 3 and 4 are identical from pooled doubtful serums. Reports on these vary from negative through doubtful and anticomplementary and hemolysed to positive. Laboratory No. 6 reports No. 3 positive and No. 4 doubtful.

WASSERMANN TESTS—THIRD SERIES.

Lab.	1	2	3	4	5	6
1	—	—	+	+	+	—
2	—	—	+	+	+	—
3	—	—	+	+	+	a. c.
4	—	—	+	+	a. c.	—
5	—	—	+	+	a. c.	—
6	—	—	+	+	+	—
7	—	—	+	+	a. c.	—
8	—	—	+	+	+	—

Specimens 1, 2 and 6 are identical. All agree except an a. e. report by Laboratory No. 3 on specimen 6. Specimen No. 5 was from pooled doubtful serums. It seems the pooled serums gave a stronger reaction than did the individual ones, since five out of eight laboratories report this specimen positive.

On the whole, the indications from these three series of tests seem to be that with a strong positive or with a straight negative specimen reports from reputable laboratories will agree, while with a weakly positive or doubtful specimen the report will vary from negative to positive, depending on the individual adjustment of the hemolytic system.

Comparative Tests with Specimens from Individuals.—In the discussion of the work done on pooled serums differences of opinion arose

which, it seemed, might be cleared away by running a series of tests on serums from individuals where the history was known. Dr. Hinton kindly agreed to furnish these serums from the laboratory of the Boston Dispensary.

Besides the Boston Dispensary laboratory, the following laboratories joined in the tests: Boston City Hospital, Boston Health Department, State Wassermann laboratory, Homeopathic Hospital Laboratory and the Sias Laboratory.

The serums were distributed Thursdays and tests were made Fridays, excepting in the Dispensary, which made the tests a day earlier.

In this series of forty-three tests there were twenty-three on which all the reports agree as negative; twenty of these have no history of syphilis; the others, Nos. 9, 22 and 31, are cases of treated syphilis.

There were five on which all agree as positive, Nos. 1, 3, 24, 25 and 30, all giving histories of syphilis.

There were seven on which there is practically agreement in the report of negative, the minority reporting doubtful or doubtfully weak positive, which the technician of the latter laboratory explains might as well be reported doubtfully negative.—Nos. 4, 8, 16, 17, 19, 34 and 36. Four with a negative history, two of treated syphilis and one where there is doubt.

There were two on which there is practically agreement on the report of positive, a minority worker reporting doubtful in one case and anticomplementary in the other. These are Nos. 11 and 32, both with histories of syphilis.

Thus, of the forty-three cases, or 258 tests, there remain but six in which there are any real disagreements.

Case No. 5, reported positive by five workers, negative by one, gives a history of syphilis, with at least twelve arsphenamines.

Case No. 7, reported positive by four, anticomplementary by one, negative by one, gives no history of syphilis, and was thought probably tubercular. In view of the Wassermann findings, the case is probably syphilitic.

Case No. 12, reported positive by four, doubtful by one, negative by one, has a history of two miscarriages and two arsphenamine treatments.

Case No. 13, reported positive by three, doubtful by one, (?) negative by one, and negative by one, gives a history of syphilis with thirty to forty arsphenamines.

Case No. 38, reported positive by three, doubtful by two, negative by one, gives a history of syphilis, with six positive and three negative Wassermans.

Case No. 42, reported negative by four, doubtful by one, positive by one, is evidently from the history a case of treated syphilis.

No. of Specimen.	LAB. A.				LAB. B.				LAB. C.				LAB. D.				LAB. E.				LAB. F.			
	State antigen.	Chol. antigen.	Ac. Ins. with 1/10 serum.	Ac. Ins. with 4/10 serum.	Report.	State antigen.	Ac. Ins. with 1/10 serum.	Ac. Ins. with 4/10 serum.	Chol. antigen 1 serum 0.1.	Antigen 1 serum 0.05.	Chol. antigen 2 serum 0.1.	Antigen 2 serum 0.05.	Report.	G. pig heart antigen.	Human heart antigen.	State antigen.	Report.	State antigen.	G. pig heart antigen.	Human heart antigen.	State antigen.	Chol. antigen.	Control.	Report.
11566	+	+	+	+	Pos.	+	+	+	4	4	4	4	Pos.	+	+	+	Pos.	+	0	+	+	4	+	Strong
11585	+	+	+	+	Neg. Mod.	+	+	+	+	+	+	+	Neg.	+	+	+	Pos.	+	+	+	+	+	?	Pos.
11565	+	+	+	+	Pos.	+	+	+	4	+	1	+	Pos.	+	+	+	Pos.	+	+	+	+	4	+	Strong
11582	+	+	+	+	Neg. Mod.	+	+	+	+	+	+	+	Weak	+	+	+	Neg.	+	+	+	+	+	+	Mod.
11548	+	+	+	+	Pos.	+	+	+	1	1	1	1	Pos.	+	+	+	Pos.	+	+	+	+	4	+	Strong
11580	+	+	+	+	Neg.	+	+	+	+	+	+	+	Neg.	+	+	+	Neg.	+	+	+	+	1	+	Pos.
11574	+	+	+	+	Pos.	+	+	+	4	4	4	4	Strong	+	+	+	Pos.	+	0	+	+	4	4	Ac.
11588	+	+	+	+	Neg.	+	+	+	1	+	+	+	Weak	+	+	+	Neg.	+	+	+	+	+	+	Neg.
11559	+	+	+	+	Neg.	+	+	+	+	+	+	+	Neg.	+	+	+	Neg.	+	+	+	+	+	+	Neg.
11578	+	+	+	+	Neg.	+	+	+	+	+	+	+	Neg.	+	+	+	Neg.	+	+	+	+	+	+	Neg.
11595	+	+	+	+	Pos.	+	+	+	4	4	4	4	Strong	+	+	+	Pos.	+	+	+	+	4	4	Ac.
11546	+	+	+	+	Mod.	+	+	+	1	3	4	3	Mod.	+	+	+	Pos.	+	0	+	+	1	1	Strong
11555	+	+	+	+	Double.	+	+	+	4	+	4	+	Mod.	+	+	+	Pos.	+	+	+	+	1	1	Pos.
11578	+	+	+	+	? Neg.	+	+	+	+	+	+	+	Pos.	+	+	+	Neg.	+	+	+	+	1	1	Mod.
0208	+	+	+	+	Neg.	+	+	+	+	+	+	+	Neg.	+	+	+	Neg.	+	+	+	+	1	1	Neg.
0208	+	+	+	+	Neg.	+	+	+	+	+	+	+	Double.	+	+	+	Neg.	+	+	+	+	+	+	Neg.

HISTORIES.

1. (14566)—Man, chancre twenty-five years ago. Treated for five weeks. Positive Wassermann.
2. (14585)—Janitor, sixty-six years old, who states there is no history of gonorrhoea or chancre. Negative clinically. Negative Wassermann. Diagnosis, flat-foot.
3. (14565)—Chancre sixteen years ago. Treated for one and a half years. Has had more than seventeen arsphenamines in the last three years, together with mercury and iodides. Previous Wassermans—positive, doubtful, doubtful, negative, positive, positive. Diagnosis, syphilis with tabetic symptoms.
4. (14583)—Jewish woman of twenty-seven with a diagnosis of tendon strain and no history of syphilis. Negative clinically. Negative Wassermann. Diagnosis, tendon strain.
5. (14548)—Storekeeper, forty-eight years old, denying chancre and other symptoms referable to syphilis and giving history of tuberculosis for four and a half years, now inactive. Three positive Wassermans followed by a doubtful and later a positive. During the course of these Wassermann tests has had at least twelve arsphenamines covering a period of three months. Diagnosis, not stated, but patient is now being given syphilitic treatment.
6. (14580)—Girl of eleven, whose parents are syphilitic. Three negative Wassermans for a period of three months. Diagnosis, the Wassermann tests taken to determine the presence of syphilis on the basis of parentage.
7. (14574)—Girl of eighteen years without stigmata of syphilis, showing ulcerated areas over the buttocks and over the arms, which are of questionable origin. Tuberculosis considered. Diagnosis, question of lupus.
8. (14588)—Married woman of twenty-four without history of syphilis. Wassermann negative. Diagnosis deferred.
9. (14559)—A married Greek woman of thirty-two who has been treated for syphilis here since 1916, having had a lot of salvarsan, mercury and iodides. Seven Wassermann reactions, all negative. Diagnosis, treated syphilis.
10. (14578)—Jewish woman of fifty without history of syphilis and a clinical diagnosis of torticollis. Wassermann negative.
11. (14595)—Child of syphilitic mother. Two positive Wassermans. Amount of treatment prior to Wassermann tests not shown in the record.
12. (14546)—Jewish widow thirty years of age with a history of two miscarriages. Positive Wassermann in New York and two injections of arsphenamines. Gives no history of primary or secondary lesions. Wassermann positive.
13. (14555)—Married man of forty-four, infected sixteen years ago. Negative Wassermann, doubtful Wassermann, lumbar puncture spinal fluid positive Wassermann, cells twenty-seven, positive gold sol, reaction, doubtful Wassermann, negative Wassermann, two positive Wassermans, negative Wassermann. Had had thirty or forty arsphenamines. Diagnosis, syphilis; tabo-paresis.
14. (14568)—Married American porter, forty years of age, treated for gonorrhoea. At present has acne. Wassermann negative.
15. (208)—Married Jewess, thirty years of age, without symptoms or physical examination of syphilis. Wassermann negative. Diagnosis deferred.
16. (191)—Married female, Portuguese, twenty years of age, with periostitis of the radius and enlarged epitrochlears, who has had six doses of salvarsan at the Boston Dispensary. Wassermann doubtful. Diagnosis, treated syphilis.
17. (193)—Italian farm hand, seventy years of age, without history or symptoms of syphilis. Wassermann negative. Diagnosis, epithelioma of the cheek.
18. (233)—Lithuanian married woman, thirty-nine years of age, who has had two miscarriages, but without any other symptoms referable to syphilis. Wassermann negative. Diagnosis deferred.
19. (206)—Italian bricklayer, forty-eight years of age, who comes with a history of having been treated for syphilis in Hartford four years ago. No physical examination taken. Wassermann negative.
20. (242)—Married woman of twenty-five, has had a medical examination; no history nor clinical evidence of syphilis. Wassermann negative. Diagnosis, psychasthenia.
21. (243)—Married Italian woman, twenty-three years of age, without history or clinical evidence of syphilis. Wassermann negative. Diagnosis, chronic pharyngitis, question of proctitis.
22. (197)—Female, thirty-eight years of age, with a history of syphilis dating back as late as seven years, who has had numerous doubtful and a few negative Wassermans, and who has had a lot of anti-syphilitic treatment, including arsphenamines. Diagnosis, treated syphilis.
23. (216)—American, thirty-nine years of age, complaining of a rash of four days' duration; also presents a penile sore of four days' duration; dark field shows no pallida. No previous evidence of syphilis. Wassermann negative. Diagnosis deferred.
24. (214)—Married American Negress, twenty-three years of age, with a history of primary seven years ago. Five positive Wassermans; large amount of syphilitic treatment. Diagnosis, treated syphilis.
25. (194)—Fireman, twenty-eight years of age, with a history of chancre a year ago. Amount of treatment not indicated on the record. Wassermann positive. Diagnosis, treated syphilis.

26. (238)—Married Irish woman, thirty-eight years of age, without history or clinical evidence of syphilis and with a diagnosis of sciatitis. Wassermann negative.

27. (241)—Single machinist, twenty-four years of age, without history or clinical evidence of syphilis. Wassermann negative.

28. (236)—Married tailor, fifty-one years of age, without history or clinical evidence of syphilis, but with keratosis. Wassermann negative.

29. (234)—Married woman, forty-seven years of age, without history or clinical evidence of syphilis, presenting arteriosclerosis and associated conditions. Wassermann negative.

30. (382)—Teamster, twenty-six years of age, with a history of syphilis and three injections of arsphenamine. Positive Wassermann.

31. (386)—Single Italian, thirty-one years of age, with a history of syphilis nine years ago, who has had a large amount of arsphenamine and mercury, but no positive Wassermann since 1920. Wassermann negative.

32. (384)—married woman, sixty-one years of age, whose husband died of shock at forty-eight, who has had eight positive Wassermanns in the last two years and intensive treatment with arsphenamine and mercury. Diagnosis, treated syphilis. Wassermann doubtful.

33. (394)—Married teamster, thirty-eight years of age, without history or physical signs of syphilis; has boils. Wassermann negative.

34. (385)—Telephone operator, twenty-one years of age, with a history of syphilis five years ago and treatment; has had no positive Wassermanns in the last two years. Diagnosis, treated syphilis. Wassermann negative.

35. (383)—Negro, navy yard helper, nineteen years of age; has had gonorrhoea, but no history of syphilis. At present has scabies. Wassermann negative.

36. (398)—Italian married woman, thirty years of age, without history or symptoms of syphilis. Diagnosis, rheumatism. Wassermann negative.

37. (410)—Married teamster, fifty-six years of age, without history or clinical evidence of syphilis; now suffering with obesity and hypertension. Wassermann negative.

38. (389)—Italian barber with a history of syphilis and six positive Wassermanns and three negative Wassermanns.

39. (396)—Married Canadian woman, forty-two years of age, without history or clinical evidence of syphilis. Diagnosis, scabies. Wassermann negative.

40. (388)—Married Canadian woman, twenty years of age, without history or clinical evidence of syphilis. Diagnosis not given. Wassermann negative.

41. (415)—Jewish housewife, forty-four years of age, without history or clinical evidence of syphilis; suffering from obesity and constipation. Wassermann negative.

42. (390)—Married Jewess, twenty-nine years of age. Has husband and one baby with positive Wassermanns; she has had intensive treatment with arsphenamine and mercury; several positive Wassermanns, none positive, however, since 1920.

43. (411)—Salesgirl, sixteen years of age, without history or clinical evidence of syphilis, but who has neurasthenia. Wassermann negative.

Results.—Out of a total of 258 tests there are, then, but six flat disagreements, or 2.3 per cent., all but one of which are on cases of treated syphilis.

There are eleven cases (4, 6, 8, 9, 14, 16, 17, 19, 34, 36 and 42) in which one or more workers noted a tendency towards false positive results with the use of cholesterinized antigens, especially the State antigen, but in most instances there was sufficient evidence from other antigens to disregard these findings or to qualify them to the extent of giving a doubtful or negative report.

Acetone insoluble antigen with .1 cc. serum tends to give false negatives. (Cases 3, 5, 12, 13, 32 and 38.) With .4 cc. serum this is largely corrected. (Cases 3, 5, 12, 32 and 38.)

It is interesting to note how much closer readings are given with cholesterinized antigens when the two doses of serum, .1 and .05, are used as by Laboratory C.

On the whole, the tests indicate a high degree of accuracy in diagnosis, and strong agreement among different workers with the same specimens.

(To be continued.)

Current Literature Department.

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CANCER OF THE PROSTATE: A COMPARISON OF RESULTS OBTAINED BY RADIUM AND SURGICAL TREATMENT.

BEMPS, H. C. (*Surgery, Gynecology and Obstetrics*, August, 1922), writes as follows:

The results obtained thus far by radium in the treatment of cancer of the prostate are inferior to those obtained by surgery.

The new methods of radium application indicate that in the future the results of the two methods will be the same.

Partial prostatectomy in cases of carcinoma occasionally proves to be a curative rather than a palliative procedure.

A combination of radium and surgery offers the best results.

[E. H. R.]

CONGENITAL PORPHYRINURIA, WITH HYDROA ESTIVALE AND PINK TEETH.

MACKEY and GARROD (*Quarterly Journ. of Med.*, July, 1922) report a case of this rare and interesting anomaly, and discuss the literature. The patient, a boy of six, passed red urine immediately after birth, and began to suffer from hydroa at the age of three months. (Hydroa estivale characterized by a bullous eruption occurring in the warm seasons on parts exposed to light, and leaving scars.) The association of porphyria with hydroa has been noted repeatedly, and it has been shown that the injection of porphyrin renders the skin highly sensitive to light. It should be noted, however, that not all cases of hydroa have shown porphyria.

Fischer showed that in porphyria there is also porphyrin in the feces, though of a somewhat different chemical formula from uroporphyrin, both of which, moreover, are different in formula from artificial hematoporphyrin, though all three give very similar spectroscopic bands. Mackey and Garrod were able to confirm these results.

The occurrence of a deep brown pigmentation of the bones has been noted in several cases, but the authors are the first to report pigmentation of the crowns of the teeth, which were of a rosy pink color during infancy, changing later to deep brown.

They follow Gunther's classification of porphyria into four classes—(1) acute toxic, following the use of trional or sulphonal, (2) acute, (3) chronic acquired, and (4) chronic congenital.

Although the origin of porphyrin from blood pigment seems certain, no signs of excessive blood destruction are found in the reported cases.

[W. T.]

REPORT OF THE AMERICAN SOCIAL HYGIENE ASSOCIATION, AUGUST 15, 1922, ON VENEREAL DISEASE CONTROL.

Figures for industrial policy-holders of the Metropolitan Life Insurance Company during the last four years show a decrease in mortality rates for the venereal diseases. Since 1917 the rate for syphilis locomotor ataxia, and general paralysis of the insane has declined 21 per cent., the figure for 1921 being 13.1 per 100,000, as compared with 16.6 in the earlier year. It is interesting to note that while there was a considerable increase each year from 1911 to 1917, there has been a sharp drop since then. This change is even more significant in view of the fact that reporting is more accurate on death certificates. The decline, therefore, has been accomplished in spite of better reporting. The decline seems to be most decided in the case of syphilis rather than for locomotor ataxia. The figures indicate that the difference between the rates for 1917 and for 1921 is chiefly accounted for by the lowering of the rates in the age period between 25 and 55 years. This improvement may be due to improved methods of treating syphilis as well as to the various measures of control established during the war by private agencies acting in cooperation with the government.

ARSENICAL PREPARATIONS IN THE TREATMENT OF SYPHILIS.

In the *International Journal of Surgery*, Vol. XXV, No. 6, June, 1922, Abr. L. Wolbarst states that a recent investigation made by a committee of German physicians showed that the chance of fatal result

in a properly given injection is about 1 in 13,000 with old salvarsan, 1 in 20,000 with sodium salvarsan, and 1 in 162,800 with neosalvarsan, an average of one fatality in 56,445 injections. Many physicians today believe that in the various refining processes, salvarsan has lost in anti-tetetic potency. On the other hand, some believe that the drug has not lost any of its power, but that the treponema has developed strains that are resistant to arsenic and therefore to arspenamin medication. Obviously it is impossible to offer positive proof on either side of this question, but the fact remains that we do not get the results with one injection of arspenamin today that a similar dosage effected in 1910 or 1911. Of the six methods of injection, i.e., the intravenous, intramuscular, subcutaneous, oral, rectal, and intraspinal, the intravenous is best for routine therapy. It has been the practice of the author for the last seven or eight years to protect his patients against possible recurrence in such cases by advising a form of "insurance" that has been very satisfactory in his experience. The "insurance" consists of neosalvarsan injection administered three or four times a year, especially in cases in which there is a fear of neuro-recurrence. The author states that there has not been a single recurrence of any kind in any patient who has taken this "insurance" systematically. In concluding, Dr. Wolbarst reminds us that the two remedies, arspenamin and mercury, are powerful poisons and that caution must be taken to consider possible susceptibility or idiosyncrasy.

MALIGNANT NEOPLASMS OF THE EXTRAHEPATIC BILIARY DUCTS.

RENSHAW (*Ann. of Surg.*, Aug., 1922) writes as follows:

Malignancy of the bile ducts, while less common than that of the gall-bladder, is not uncommon. The ratio in a series of 104 cases of malignancy of the biliary ducts and gall-bladder was one to four.

Carcinoma is the most common type of neoplasm found.

Gallstones would seem to be of greater etiologic importance than is generally considered.

Males and females are affected in the ratio of about two to one.

About two-thirds of the cases occur between the ages of 50 and 70 years.

A diagnosis of malignancy of the ducts is uncertain.

After a diagnosis of obstructive jaundice has been made, exploration is generally advisable.

From the standpoint of slowness of growth and rarity of metastasis, surgical treatment should be favorable.

Early treatment of disease of the gall-bladder may occasionally prevent the development of malignancy.

Operation on patients with jaundice carries a high mortality.

[E. H. R.]

THE SURGICAL VALUE OF THE ESTIMATION OF THE BILE PIGMENTATION (ICTERUS INDEX) OF THE BLOOD SERUM.

STETEN (*Ann. of Surg.*, Aug., 1922) concludes that the icterus index determination is of value from the surgical standpoint:

1. As an indicator of the absence or presence of jaundice and as an aid to diagnosis in doubtful cases, being more dependable and delicate than the inspection of the skin and sclera, or the examination of the urine.

2. As a method of accurately estimating, in frank icterus, the pre- or post-operative increase or decrease in the degree of jaundice with the accompanying progression or recession of the disease.

3. As a guide in differential diagnosis, in the placing of operative indications and in prognosis, in cases of outspoken jaundice, by means of the study of the fluctuations in the index figures.

[E. H. R.]

EXTIRPATION OF ONE ADRENAL GLAND FOR THE CURE OF EPILEPSY.

FISCHER (*Ann. of Surg.*, Aug., 1922), basing his operative work on the assumption that the convulsive seizures in epilepsy are the expression of excessive labor performed by the striated muscles of the body, and the fact that in disease or absence of the adrenal gland there is accompanying muscular weakness, has experimentally removed the left adrenal gland in cases of epilepsy, with considerable improvement in some cases. He describes the technic of the operation and reports a number of cases.

EXPERIMENTAL RECONSTRUCTION OF THE ESOPHAGUS WITH AUTOGENOUS FASCIA LATA TRANSPLANTS.

ALIEN (*Ann. of Surg.*, Aug., 1922), from his series of experiments, draws the following conclusions:

1. That it is possible to repair defects in the wall of the cervical esophagus by the use of autogenous fascia lata transplants.

2. That the stratified epithelium lining the esophagus in the dog possesses the power of regeneration to a degree sufficient to enable it to bridge over defects which have been filled in with fascia lata transplants.

3. That infection along the cervical portion of the esophagus may produce a mediastinitis or a mediastinitis associated with a general empyema.

4. That this infection is accompanied by leakage of the contents of the esophagus.

5. That silk or linen should not be used for suturing the mucosa.

6. That stenosis may or may not be found after repair of defects in the wall of the esophagus with fascia lata transplants.

[E. H. R.]

PERFORATION OF DUODENAL ULCER FOLLOWING GASTRO-ENTEROSTOMY.

DOUGLAS (*Ann. of Surg.*, Aug., 1922) reports a case in which this accident happened, and finds after a careful search of the literature that the total number of cases so far reported is only 29. He speaks briefly of the type of cases in which this thing occurs and reports by means of a schematic chart the results in all of the cases found in the literature.

[E. H. R.]

LYMPHOSARCOMA OF THE INTESTINE.

DENOYELLES (*Ann. of Surg.*, Aug., 1922) summarizes his paper as follows:

1. Two cases of lymphosarcoma of the intestine are described, one of tumor of the jejunum, the other of the ileum. In one instance the tumor was a diffuse infiltration of the intestinal wall, an annular type of growth. In the other case a lymphosarcoma polyp was found which gave rise to an intussusception.

2. The microscopic picture leaves much speculation as to the origin of the tumor cell, but in these two cases the predominant cell is one which resembles a great deal the transitional large mononuclear cell of the blood.

3. Lymphosarcoma of the intestinal tract is difficult of clinical diagnosis, the signs being simply those of malignancy, with partial obstruction being rather constantly present. X-ray examination was of no help in these two cases.

4. Treatment consists of radical removal of the

primary growth with as much of the metastases as is possible. Improved methods of radium application might be a valuable therapeutic adjunct.

5. Chronic irritation, possibly a specific toxin, may play an important rôle in the genesis of lymphosarcoma. The histology of infectious granulomata of the intestine often simulates this tumor. Perhaps lymphosarcoma is only one of the many bizarre late pictures of lesions which were at one time of the nature of Hodgkin's disease or lymphoblastic or lymphocytic leukemia.

[E. H. R.]

PRIMARY TUMORS OF THE URETHRA.

SCHOLL and BRAASCH (*Ann. of Surg.*, Aug., 1922) write as follows:

Malignant tumors of the male urethra often develop following long-standing urethral infections. Primary tumors are extremely rare both in the male and female. In the female they are generally located in the anterior urethra and tend to grow outward, away from the bladder.

Most malignant tumors of the urethra are squamous-cell growths. They are highly malignant, but are well walled off by fibrous tissue and lymphocytic infiltrations. They tend to remain limited to the local condition and to the regional lymph glands, and usually respond readily to radium treatment.

Three cases of epithelioma of the female urethra and one of the male urethra are reported from the Mayo Clinic.

Benign solid tumors are only rarely seen in the urethra. The majority of these belong to the group of fibromyomas. One case of fibroma of the female urethra is reported.

[E. H. R.]

PLASTIC SURGERY OF THE FACE, INCLUDING TREATMENT OF COMPLETE DOUBLE HARELIP.

HIGHSMITH and VEAU (*Ann. of Surg.*, Aug., 1922) present two very valuable articles on this subject, profusely illustrated with excellent drawings showing technic. VEAU's drawings are of especial interest and value. These two articles form a valuable symposium on this subject.

[E. H. R.]

RESULTS OF TREATMENT IN FORTY-EIGHT CASES OF SCIATICA.

OTT (*Ann. of Surg.*, Aug., 1922) states that in 48 cases of sciatica in which no definite causative factor could be found, repeated epidural injections, combined with the removal of possible foci of infection in a large percentage, resulted in permanent cure in 29 per cent., and permanent amelioration of symptoms so that the patient was able to continue his occupation with a fair degree of comfort in 37 per cent.; in the remaining 34 per cent. no permanent beneficial results were obtained.

[E. H. R.]

GLUCOSE TOLERANCE AND ITS VALUE IN DIAGNOSIS.

JOHN (*Jour. Metabolic Research*, i, 497, April, 1922; actually received July 29) presents 20 tables and 111 charts and a text discussion sufficiently condensed and crisp to be good reading. The most stimulating statements are these:

Following the forced fluid intake of the test (about a quart in about four hours), urine volume was smaller than the intake in about 50 per cent. of the non-diabetics, but in as many as 75 per cent. of the diabetics. His probable explanation was that the persistent hyperglycemia "holds" the water.

The time of the maximal blood sugar was in 49 per cent. of the diabetics at two hours, and at one

hour in 33 per cent.; whereas it was at the half-hour in 54 per cent. of the non-diabetics, and at one hour in 37 per cent.

"The more peak . . . appears to have little or no significance. The most important point is the length of time which it takes for the reestablishment of the normal level. After the ingestion of 100 gm. glucose, if the curve comes back to normal inside of three hours, the individual is considered non-diabetic." (Much the same contention has been made by Hamman, but so far without winning attention from the peak.)

Glycosuria and hyperglycemia are independent. In 715 observations 14 per cent. showed glycosuria despite normal glycemia, while in 18 per cent. glycosuria was not manifested in the presence of hyperglycemia. "Thus the percentage of error in diagnosis when a urine examination alone is made may be 32 per cent."

"There is no such thing as a fixed normal renal threshold, usually placed at 170 mg. per 100 c.c." (In connection with this statement one should not overlook Folin and Berglund's recent evidence in support of the renal threshold.)

[H. G.]

AN IMPROVED ALIMENTARY GLUCOSE TOLERANCE TEST.

BEELER, BRYAN, CATHCART and FITZ (*Jour. Metabolic Research*, 1, 549, April, 1922) propose "a simple modification" of the well-known 100 g. glucose tolerance test. One hour after ingestion, the stomach was emptied with a Rehfuess tube, the percentage of sugar recovered was titrated and also the blood hemoglobin was determined. With these figures two corrections were made of the blood sugar values. (This study seems, even to a believer in the utility of more mathematics in medicine, rather profound and stimulating than convincing. In the forest of figures one seems to lose sight of the evidence in the literature that in a given individual much the same glyceemic curve is obtained, whether the dose of glucose be 20 grams or 200, i.e., the amount absorbed in surprisingly immaterial. From table 3 one sees that the fraction of glucose recovered from the stomach varied in 21 cases from a trace to 63 per cent. Or one can derive the average of 31 per cent., that is, the average subject absorbed 69 g. glucose. Only two cases absorbed less than 22 g., hence only in these should the reviewer expect the new technique to be helpful. Despite these reservations, the method merits attention, since the accuracy aimed at, and claimed, will when confirmed be a most valuable asset.)

[H. G.]

CLINICAL OBSERVATIONS ON TREATMENT AND PROGRESS IN DIABETES.

FREDERICK M. ALLEN and JAMES W. SHERRILL (*Jour. Metab. Research*, March, 1922, 1, page 377) write:

"This paper is an exhaustive statistical analysis, the first to come from this clinic, from which most of the material so far has been in the nature of studies on individual animals and men. The article is too long to do more than pick out certain points. The authors offer a plan which they suggest may be adopted by others for the sake of comparison. The principle of general agreement on a method of statistics is certainly important, while many of the arguments detailed by these writers differ from their predecessors.

They say that patients coming to obtain advice on a single occasion are ordinarily not taken under treatment by the consultant, nor does he undertake responsibility for the future,—such cases, these authors exclude. It may be interesting to compare with this review the recent statement by Joslin: "Statistics based on selected series cases are plausible but unsat-

isfactory. Though a diabetic patient is seen but once, an influence should be exerted to guard that patient from coma or gangrene, and to state all those possible legitimate hopes and prospects by which the patient's courage may be and often is maintained." Furthermore, the reviewer would urge that an expert's advice on a single occasion may well be worth more to the patient than uninformed advice on many occasions.

They assert: "With an insignificant number of exceptions these patients had mild diabetes, as is likely to be the case with those who request merely an incidental opinion. There is a reasonable expectation that all but a very few of them are alive, and the inclusion of this group would certainly make the general statistics appear much more favorable." The reviewer ventures the protests that mild diabetes very often becomes severe and also that assumptions as to the viability of untraced cases often prove later, after the cases have been traced, to have been surprisingly mistaken.

"Any deaths that occur shortly after consultation on account of complications then existing have been included in the following tables." (Agreed.)

"The physician is called to see whether patients . . . with dangerous complications such as coma or infections already present. As these complications have not developed under the diabetic treatment, they are not a test of the treatment of diabetes as such." (Omission of patients in actual coma, i.e., unconscious, seems to the reviewer legitimate. But patients with infections should, some of us believe, not be excluded, in view of both the great variability of the severity of the infection when first seen, and also the good outcome in some diabetics with even severe carbuncles or gangrene.)

Allen and Sherrill most justly observe that "some former opinions of the unreliability of diabetics are untrue for the majority will follow diet conscientiously," when properly instructed. (At the same time, regarding their exclusion of patients who are considered unfaithful to treatment, it seems important to remember the difficulty of estimating the exact amount of foods eaten, the tendency of most patients, after they go home, to estimate rather than weigh their food, and the resulting lapses, as evidenced by the frequency with which patients return and are found on careful observation to be no more severe than previously; that is, they became sugar free when put on their same old diet, actually measured instead of guessed. Therefore, it seems to us that patients should not be excluded on this ground of infidelity to treatment, although it certainly is most instructive to examine the separate tabulations by these authors).

Finally, their critiques of the work of Petten and of Newburgh and Marsh deserve attentive reading.

[H. G.]

INTESTINAL ADENOMAS OF ENDOMETRIAL TYPE. THEIR IMPORTANCE AND THEIR RELATION TO OVARIAN HEMATOMAS OF ENDOMETRIAL TYPE (PERFORATING HEMORRHAGIC CYSTS OF THE OVARY).

SAMPSON, J. A. (*Archives of Surgery*, Sept., 1922) presents a 73-page article on this subject profusely illustrated with excellent drawings explaining the text, and draws the following conclusions:

Intestinal adenomas of endometrial type are implantation growths, similar in many ways to those arising from a rupture or perforation of a malignant (sarcomatous) ovarian cyst. Fortunately, their distribution is usually not so great; they are not so invasive; they grow more slowly and spread less rapidly. They often take part in menstruation and, therefore, may combine this function with that of invasion. These implantations may spread by growth, by continuity and, possibly, by further implantations arising from the escape of menstrual blood from them, carrying some of the overlying epithelium with it.

The portions of the intestinal tract most frequently involved are those usually found in the pelvis; as the sigmoid, rectum, appendix and terminal loop of the ileum. In the twelve cases reported in this series, the rectum and the sigmoid, including the epiploic appendages, and the mesentery of the latter were involved in eight, the appendix in four, and the small intestine in two. In the eight instances of implantations on the sigmoid and rectum, an ovarian hematoma, with evidence of a previous perforation, was situated in the left ovary in six; while in the four instances of implantation on the appendix, a similar hematoma was situated in the right ovary in all four. This suggests that while the intestinal implantations from either ovary may be general in their pelvic distribution, the portion of the intestinal tract normally situated near the ovary is more likely to be involved.

The character of the intestinal lesions varies greatly, and they may be grouped as follows:

1. Surface and superficial implantations.

2. Implantations developing between adherent folds of peritoneum and other adherent structures (pocketed implantations), best seen in the cul-de-sac between the posterior wall of the uterus and the rectum, which are often fused together. The surface of the adherent parts, which are exposed after separating them, often have a characteristic "pitted" appearance due to the exposure of endometrial tissue in the pockets between the adhesions or in the deeper tissues of the organ involved.

3. The deep invasion of the underlying structure or organ: The tubules worm their way into the tissues of the intestine; and this is often associated with a marked hypertrophy of the surrounding connective tissue and muscle. Many varieties of endometrial tissue and its derivatives may be found, including glands and tubules with and without a characteristic endometrial stroma, dilated tubules, miniature uterine cavities, hematomas and the invasion of lymph vessels by endometrial polyps.

As an implantation carcinoma these implantations may occur on any part of the intestine; its peritoneal surface, its mesentery and especially the epiploic appendages of the sigmoid. The latter may serve as a portal of entry to the deeper tissues of the wall of the intestine.

The intestinal lesions are often only of histologic interest and do not give rise to any symptoms. In other cases the lumen of the intestine is encroached upon by indentations, by hypertrophy of its walls, and by hematomas; the latter may become larger during menstruation so that symptoms of obstruction may only occur or be more marked at that time.

The operative treatment of intestinal adenoma of endometrial type is at present an unsettled problem. My own reaction, at present, on finding what appears to be an intestinal lesion is to examine carefully the surface of the intestine for dots and areas due to hemorrhage, to look for other implantations in the pelvis, and most important of all to examine carefully the ovaries for any sign of a hematoma with evidence of a previous perforation, bearing in mind that it may be very small and is most frequently situated on the lateral or the under surface of the ovary. If the evidence found indicates an adenoma of endometrial type I do not disturb the intestinal lesion, except as it may be easily removed for histologic study, but deal with the pelvic organs as their condition requires. Conservative ovarian surgery in these cases leaves behind a possible source of more implantations, and apparently retained ovarian tissue may sometimes stimulate the growth of the implantations which have not been removed.

Intestinal adenoma of endometrial type is a common condition occurring in more than one half of the cases with ectopic endometrial adenomas and the latter may be found in from 10 to 20 per cent. of women between 30 years of age and the menopause, who require an abdominal operation for some disease

of the pelvic organs. On account of its frequency, pathologic interest and clinical importance, it deserves a greater recognition than has been accorded it in the past.

[E. H. R.]

THE AUTOTRANSPLANTATION OF ENDOMETRIAL TISSUE IN THE RABBIT.

JACOBSON, V. C. (*Archives of Surgery*, Sept., 1922) writes as follows:

It has been demonstrated in this series of experiments that endometrial tissue transplanted into the ovary and pelvic fat of the same animal will grow for as long as seventy days and probably much longer. Adenoma-like growths and multilocular cysts, which, histologically, show much similarity to "ovarian" cysts-adenomas of women, are produced. Under the influence of pregnancy, a more rapid epithelial growth occurs, with the production of a papillary "cyst-adenoma" which has some of the characteristics of a malignant growth. All of these observations are in agreement with Sampson's explanation of adenomas of the endometrial type which are found in the ovary, in the cul-de-sac, adherent to and invading the appendix, intestine, rectum, oviduct and uterus, and which apparently arise from ectopic epithelium discharged into the pelvis through the fimbriated end of the oviduct, this epithelium coming either from the uterus or the oviduct or from both.

[E. H. R.]

PREOPERATIVE TREATMENT OF MALIGNANT TUMORS OF THE BLADDER BY RADIUM.

SCHOLL, A. J., and BRAASCH, W. F. (*Archives of Surgery*, Sept., 1922).—These authors write as follows:

Radium rays administered in small amounts definitely destroy the proliferative power of living cells. The activity of the cell is lessened, and it passes through a quiescent stage from which it gradually recovers as the effects of the radium wear off. In many cases, there is destruction of the nuclei which is accompanied by an atypical cell growth and vascularization, and later by fibrosis.

At the Mayo Clinic, the flat, infiltrating, rapidly recurring type of bladder tumor is exposed to radium before operation in an effort to reduce the activity of the malignant cells and prevent operative transplants and early postoperative recurrences. Tubes of radium emanation are inserted through the direct cystoscope into the substance of the tumor, which later is removed surgically. Specimens for histologic study are removed from the tumor before irradiation, and their histologic structure is later compared with that of the surgically removed area. In the majority of cases, there is a marked reduction in the size of the tumor, with a widespread and constricting fibrosis.

[E. H. R.]

PRIMARY SQUAMOUS-CELL CARCINOMA OF THE KIDNEY AS A SEQUEL OF RENAL CALCULI.

WELLS, H. G. (*Archives of Surgery*, Sept., 1922) writes as follows:

The formation of keratinizing squamous-cell carcinoma in the renal pelvis is a rare occurrence. In the case reported, which is of this sort, the metaplasia of the transitional epithelium to the squamous form was apparently the result of chronic irritation from renal concretions.

[E. H. R.]

URETHROSCOPIC FINDINGS IN FUNCTIONAL DISORDERS OF THE GENITO-URINARY TRACT.

WOLFEARTH, A. L. (*Journal of Urology*, March, 1922) writes:

Fifty consecutive cases were selected, having well-defined clinical symptoms, which can be placed in one of the three groups just mentioned.

The conclusions drawn are:

1. Functional disturbances of the genito-urinary tract are invariably associated with pathologic lesions in the posterior urethra.

2. These lesions usually involve both the verumontanum and the urethral canal behind it, occasionally also the internal sphincter.

3. When the urine is hyperacid, urinary frequency is likely to be the predominating symptom.

4. In 64% of cases, in this series, there was no history of previous gonococcal infection.

5. Excessive masturbation, prolonged sexual excitement without gratification, and withdrawal (coitus interruptus) practiced for long periods seem to be the etiologic factors in the nongonorrheal cases.

6. Whatever the etiologic factor may be, the resulting functional disturbance does not follow any specified type; and there is no apparent correlation between the clinical phenomena and the urethroscopic picture.

7. Sexual neurasthenia, so called, is a misnomer; it should be considered an aggregation of more or less serious disorders involving one or more functions of the genito-urinary tract and associated with definite pathologic lesions in the prostate and seminal vesicles and reflected in the urethroscopic picture of the verumontanum and posterior urethra.

8. Every case of functional disorder referable to the genito-urinary tract should be subjected to thorough study and examination through the urethroscope. [B. D. W.]

THE USE OF THE HIGH FREQUENCY CURRENT IN THE TREATMENT OF LESIONS OF THE DEEP URETHRA.

YOUNG, H. McCURE (*Journal of Urology*, March, 1922), writes:

The lesions of the urethra posterior to the cut-off muscle are:

1. An inflammatory overgrowth of the mucous membrane which may take the form, (a) of a generalized hypertrophy of the mucosa throwing it into rather coarse folds and rugae, or (b) the more localized hypertrophies known as polyps. Often both conditions are present.

2. Granular areas, fairly well localized but not sharply outlined as a rule. In long-standing cases these may have undergone a rather exuberant proliferation, giving rise to a sort of tumor, a granuloma. Papillomata are very uncommon in the deep urethra.

3. Small sinuses running out of the deep urethra into the substance of the prostate are very common, and should always be carefully looked for. These can be lightly cauterized with a Bovie fulgurating electrode.

Varicose veins sometimes occur in the deep urethra.

These lesions can be controlled by high frequency current applied with great accuracy under control of the eye.

The paper concludes with a method of fulgurating offending prostatic lobes. [B. D. W.]

TYPES OF NEPHRITIS WHICH LEAD TO UREMIA.

FOSTER, NELVIS B. (*Journal of Urology*, March, 1922), writes:

Confining ourselves strictly to facts, we have evidence at present only that uremia in any of its forms is a result of impaired renal function; this modicum of evidence is always procurable. Furthermore, that the degree of impairment is directly proportionate to the number of renal elements (tubule and glomerulus) that are damaged seems quite probable, although not established. We should find then the solution to our query concerning the uremia producing type of nephritis not in a type, but rather in a degree

of severity, not a qualitative, but a quantitative relation. [B. D. W.]

FOREIGN BODIES IN THE BLADDER.

DAY, R. V. (*Journal of Urology*, March, 1922), writes:

A summary of the various methods of removing foreign bodies from the male bladder. The variety of foreign bodies found is,—chewing gum, paraffin, broken-off pencils, small irrigating nozzle, hairpins, and hatpins; any of the above may be more or less encrusted with urinary salts, depending on the length of time they have been in the bladder.

A small lithotrite, where the female blade has no fenestrum, but is cupped and so blunt that no injury is done to the bladder mucosa, is very satisfactory.

Employment of cystoscopic forceps through the operating cystoscope may be successful.

An oval-shaped stone was removed by the author, using a large-sized Braasch cystoscope, No. 25 Chariere. Through the catheter guide in the cystoscope was introduced an alligator forceps. [B. D. W.]

ATROPHIC PYELONEPHRITIS.

BRAASCH, W. F. (*Journal of Urology*, April, 1922), writes:

Pyelonephritis is, as a rule, not regarded as a surgical disease of the kidney for two reasons: (1) acute infections usually resolve spontaneously, and (2) chronic infections are almost always bilateral and respond in greater or lesser degree to medical treatment. Unilateral pyelonephritis, which does not respond to medical treatment, becomes a surgical condition and usually demands nephrectomy.

Atrophic pyelonephritis is distinguishable from chronic bilateral pyelonephritis; in the former the urinary symptoms are less severe and are usually not progressive; the pain is unilateral and may be more severe and is frequently accompanied by evidences of acute renal infection.

Atrophic in contrast to bilateral pyelonephritis, the bladder is usually found on cystoscopy to be involved only to a moderate extent or not at all. The phenolsulphonphthalein test is of great clinical significance as it usually is markedly diminished on affected side and the other side will usually show increase. In bilateral the function is usually diminished on both sides.

The differential is pelvic duplication—wide stricture of the lower ureter, chronic renal tuberculosis.

The etiology is probably a primary aseptic infarct. Operation gives relief. In the 28 cases reported in this paper all but one was markedly relieved. [B. D. W.]

CONCERNING THE EFFECT OF SALINE PURGATIVES ON THE ABSORPTION AND EXCRETION OF PHENOLSULPHONPHTHALEIN.

MACHT, DAVID I. (*Journal of Urology*, April, 1922), writes:

In experiments on dogs the output of phenolsulphonphthalein is decreased by one-half, when a solution of sodium sulphate or a magnesium sulphate is administered at time of giving drug. The same experiment was repeated, but the dye was given intramuscularly rather than orally, and again the output was markedly retarded. Tests were then made on loops of intestines, jejunum, and the results showed the loop containing the saline purgative retained much greater quantity of dye.

The author then tried salines on himself and some colleagues and all showed retarded output when taking salines. It appears probable that osmotic phenomena and an increased concentration of the blood play the principal part.

The tests on man are few, and further experiments must be carried out as this is only a preliminary report. [B. D. W.]

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THE STUDY OF MATERNAL MORTALITY.

THE committee appointed for the purpose of studying the factors involved in maternal and infant mortality has been at work analyzing the returns filed at the State House. A questionnaire has been sent to every physician whose name appears on the death certificate, asking for information relating to the antenatal conditions and the circumstances attending maternal deaths.

It is gratifying to find that a large proportion of the physicians appealed to have shown a spirit of coöperation for which the societies represented on the committee should be thankful. There are, however, some who have not taken the trouble to reply and the committee would call the attention of the profession to the importance of this study and the obligation which the profession of medicine imposes on its members to add to the common knowledge relating to the causes of death under investigation.

This study has not been prosecuted with the purpose of finding opportunities for criticising any practitioner, but rather to ascertain the reason for these casualties, if possible. Several eminent men have interpreted the facts as indicating lack of understanding of the basic principles of hygiene by the laity and failure to secure early medical supervision and assistance; others have felt that the practice of midwives

has contributed to disasters in some localities, while still others suspect that meddling midwifery and resort to uncalled-for operations may have some influence.

It is generally conceded that the practice of obstetrics by well trained and judicious accoucheurs is securing better results than ever before in the history of medicine and since state registration is gradually eliminating the less well qualified doctors, the average service should be better. Some published statistics seem to indicate that we have passed the peak of relative mortality and there is hope that future records will demonstrate this expected improvement.

There is, however, a logical contention that the conditions of modern life do not, in some instances, fit women for the responsibilities of maternity and that because of impaired vitality there may be less resistance to sepsis and greater danger of toxemia among parturient and pregnant women.

It has been contended that the development of surgical technic and aseptic precautions have led to an undue dependence on some operative procedures. This may be an open question and call for some authoritative opinion, and although it is too early to speak definitely on this phase of obstetric practice, the rule adopted by some hospitals in requiring competent consultation before resort to major operations in obstetric cases, seems to indicate that the fear exists in some minds that enthusiastic operators need some restraining supervision.

These are all matters of concern to the medical profession and in order to arrive at logical conclusions, physicians should contribute the facts under observation. The Committee of the Massachusetts Medical Society and the Massachusetts Homeopathic Medical Society, respectfully solicits the assistance of physicians in this state, in the study now being made.

THE PRACTICE OF MEDICINE BY THE CLERGY.

ACCORDING to Dr. Elbert H. Grandin of New York, a movement has been inaugurated for the purpose of legalizing an alleged method of curing disease by the laying on of hands according to the methods employed by Mr. Hickson.

The champion of this movement is the Bishop of New York. He is reported to have given Mr. Hickson every opportunity to demonstrate his methods when he, the Bishop, was Rector of Trinity Church. If this report is true it is time for the medical profession to put aside its conservative attitude and take the field in a campaign of opposition to any plan which seeks to deceive the people. Physicians have been reluctant to enter upon any controversy involving the application of religious faith in the cure of disease through mysticism, for physicians as a class share with the great majority of mankind

a profound respect for true religion and so far as religious teaching and practice are applied to the spiritual and moral nature, extend encouragement and support. But the profession as a body understanding the behavior of those diseases which have a recognized pathology, would resent the impious assumption that the operation of natural laws can be suspended by methods which appeal to the emotions rather than to reason. If it could be shown that the Deity is disposed to suspend the known laws of disease, physicians would forsake their arduous tasks and enter the orders of the Church, but experience has demonstrated that certain diseases are inexorable and do not respond in any great degree to the mental or moral attitude of the sufferer. It is, of course, generally conceded that functional conditions can be materially modified or a cure effected through changing the mental attitude. If this phase of treatment is recognized and given its proper application, the psychic effects of good counsel and the encouragement extended by a dominating personality have their proper places.

Some years ago, the movement in Boston which had for its objective the bettering of physical and mental disorders logically employed medicine as its coadjutor and whenever it was found that an organic disease was suspected a physician's advice was sought. This latter movement was misinterpreted and criticised. It did not seem to accomplish all that was expected of it by its supporters, although the motives were good and the practice free from unsound methods.

It is still in operation and is endorsed by physicians and patients. It is respectfully suggested that Dr. Grandin is in error in placing this local effort in the same class with the plan advocated by the Bishop of New York.

In distinction to the Boston movement many theories and practices relating to morbid condition which have been exploited from time to time, unless founded on scientific knowledge and applied by competent physicians have been abandoned. The hectic flush of over-enthusiasm has too often preceded dissolution.

The clergy will hold their position of influence so long as they deal with the problems of ethics and religion, but diseased minds, as well as bodies, must in the end be presided over by painstaking and competent physicians. The people must beware of false teachers, even though they are in high places.

PLOTTING DEATH RATES.

In the Public Health Reports for August 18, 1922, Professor George C. Whipple and Miss A. D. Hamblen present arguments for the use of semi-logarithmic charts for plotting death rates. The vertical scale is based on the logarithms of the numbers from 1 to 10, with subdivisions, and these repeat themselves, the dis-

tances between 1 and 10, 10 and 100, and so on, being equal, the horizontal scale is arithmetical, and therefore uniform. This plan is especially useful for long-time records, and the significance is more easily appreciated than when curves are shown on cross-section paper. Several illustrations are given, the interesting facts being that from 1851 to about 1890 the death rate in Massachusetts rose slowly from 18 to nearly 20 per 1000, then it began to go down, with some variations, until 1921, when it reached 12 per 1000.

The reason given for the change beginning with 1890 is the application of the science of bacteriology, for it was the employment of this science in water purification, sewage disposal, and the development and distribution of diphtheria antitoxin, and allied efforts, supplemented in about 1910 by pasteurization of milk, and other health measures, which may be regarded as the most important factor. Speaking of tuberculosis, the statement is made that "one may almost venture to predict its future death rate," for if the present decline continues, the death rate for this disease will be 38 in 1950, as compared with the present rate of 82 per 100,000.

Typhoid fever, diphtheria, scarlet fever, and infant mortality show an encouraging diminution. In contrast, the analyses show that the death rates from Bright's disease, cancer and organic heart diseases are steadily increasing. The mortality from measles and whooping cough has not diminished.

Several other matters of interest warrant careful study by persons interested in statistics. Such analytical presentations convey encouragement in some directions, and furnish incentives for study of those diseases that are baffling.

EDITORIAL NOTE.

In another column of this number of the JOURNAL appears the Program of Meetings of the Suffolk District Medical Society for 1922-23.

There will be an opportunity to hear some of the foremost medical men in this country. The subjects of the meetings are quite different from the subjects usually presented. Every member of Suffolk District owes it to himself, as well as to the Society, to attend as many of these meetings as possible.

NEWS ITEMS.

ANNOUNCEMENT OF DR. CHRISTIAN.—Dr. Henry A. Christian begs leave to announce that, having arranged to curtail the time devoted by him to teaching work in the Harvard Medical School, he will resume consultation work in internal medicine on October 1, 1922. Patients will be seen also by appointment in his office at

the Peter Bent Brigham Hospital, corner of Huntington Avenue and Francis Street, Boston. Patients requiring special study can be admitted to the Peter Bent Brigham Hospital for observation. Dr. Cyrus C. Sturgis will be associated in this work.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Sept. 9, 1922, the number of deaths reported was 166, against 161 last year, with a rate of 11.3 against 11.08 last year. There were 33 deaths under one year of age, against 26 last year.

The number of cases of principal reportable diseases were: Diphtheria, 38; scarlet fever, 9; measles, 8; whooping cough, 48; typhoid fever, 3; tuberculosis, 27.

Included in the above were the following cases of non-residents: diphtheria, 5; scarlet fever, 2; tuberculosis, 7.

Total deaths from these diseases were: diphtheria, 4; whooping cough, 2; tuberculosis, 12.

Included in the above were the following cases of non-residents: diphtheria, 1; whooping cough, 1; tuberculosis, 2.

EASTERN HAMPTON MEDICAL ASSOCIATION.—The Association will hold its monthly meeting at the Springfield Academy of Medicine, October 5. Theme: "Spinal Puncture." Speakers: Drs. M. B. Hodskins, I. N. Kilburn, S. D. Davis, J. M. Birnie, and H. S. Cleveland.

BEVERLY HOSPITAL CLINIC.—Following is the program of the monthly clinic held at the Beverly Hospital on Tuesday, Sept. 19th, at 4 p. m.:

Specimens of extrauterine pregnancies.

Pancreatitis.

Appendicitis, acute.

Tumor of the lower abdomen, lipoma, retroperitoneal—weight 10 lbs.

Tumor of abdomen (in child); pre-operative diagnosis—retroperitoneal sarcoma.

Diabetic gangrene.

Intestinal obstruction.

Carcinoma of sigmoid.

Fracture of skull.

Fracture of skull.

Fracture of skull.

Fracture of skull.

Traumatic cerebral hemorrhage.

Miscellany.

WORCESTER DISTRICT MEDICAL SOCIETY.

The first regular meeting of the Worcester District Medical Society was held in the rooms

of the University Club, Worcester, September 13, at 8.15 P. M.

Dr. Geo. M. Albee read a paper on Classifying Our Cardiacs, a synopsis of which may be found below. The paper was discussed at length by Dr. A. S. Levine of Peter Bent Brigham Hospital, Boston, and by Drs. Stevens, Curran, Hurd, and others.

At the business meeting a committee was appointed consisting of Drs. Shannahan, R. J. Ward, Ellison, Hurd, and McKay, to consider the question of the adoption by the Society of the A. M. A. Caduceus for the members automobiles in place of the green cross now used so extensively by many clubs.

It was voted to accept the invitation of the Worcester North District Society and meet with them in October, the date to be arranged later.

CLASSIFYING OUR CARDIACS.

PATIENTS who come to us complaining of shortness of breath, swelling of the legs, precordial pain, palpitation, cough after exertion, dizziness, fainting or weak spells, may be placed in two groups, functional and organic heart disease.

The functional cases, which are by far the more common, may be divided into five groups, (1) Constitutionally Inferior. (2) Emotionally Sensitive. (3) Neurotics. (4) Neurological Basis. (5) Physical Strain, and I think we could add the Tachycardia of Hyperthyroidism to these groups.

1. The constitutionally inferior complain of faintness, dizziness, shortness of breath and palpitation. The majority of them are young adults or adolescents. They are rather sickly looking with thin undernourished bodies, blue cold hands, rapid pounding hearts with a systolic thrill at the apex and with sweat running down from the axillae. They say they have been nervous and tired since childhood, or they have been told they have heart disease. They never hunted or fished or played football or hockey and they never knocked a home run. They left school at an early age and a low grade. Their first job was too hard. They kept getting easier ones. They are bell boys, or timekeepers, or chauffeurs, or they run elevators. Their family history is poor. Parents died young, or are not very well. On physical examination we may find a systolic murmur at the apex. It varies with the phase of respiration. There is no enlargement of the heart and there is no history of rheumatic fever. The heart rate will slow up on stooping. There may be an impure first sound at the apex suggestive of a presystolic murmur, but it will clear up on inhaling a pearl of amyl nitrite.

2. The emotionally sensitive are healthier looking. Their past history is better, but they are easily upset and they break down under severe mental strain. They complain of shortness of breath and weak spells. In the Army they became the cases of shell shock. Their physical findings are about the same as the con-

stitutionally inferior. They improve under a change of surroundings and rest.

3. The neurotics complain of faintness. They vomit without cause, have hysterical attacks. They have long barrel-shaped chests. These cases are often taken for hyperthyroidism. They have the four cardinal symptoms—tachycardia, tremors, loss of weight, and struma. The only proof is the indefinite history of onset and basal metabolism; though these cases have no pep and the goiter cases are full of energy. The physical findings in the heart are negative.

4. Those with a neurological base have a history of epilepsy, basal meningitis, encephalitis, or damage to the nervous system during infection.

5. Physical strain. After an illness one is weak. The skeletal muscles tire easily. One gets short of breath doing what he used to do without knowing he had a heart. In health the skeletal muscles will give out before the heart does.

Hyperthyroidism might be spoken of here, as in its early stage the heart change is a functional one, though later in life there is a myocardial change and the patient comes under the group of organic hearts, or goiter heart which is a branch of the sclerotic hearts.

Patients with organic heart disease may be divided into two groups, the infectious and the degenerative or sclerotic.

They may also be divided into two groups, the active and the inactive. That is those where the damage is being done and those where the heart structure has been damaged at some previous time. These should really be called affected hearts rather than infected. We have had the infection, now we have the affection. The scar tissue is what is interfering with the work of the heart, and we are called upon to treat the patient for heart failure rather than for heart disease.

It is easier to handle our heart cases if, as Dr. White suggests, we study them from three standpoints,—etiology, structural change and functional condition. If we group them as I have suggested, we have considered the etiology and it is wonderful how that clears up a case. Has the patient any reason for having heart disease? If he has a reason, if he has had rheumatic fever, has it produced any structural change? If it has affected the endocardium there will be a change in the heart sounds. There will be a murmur. If there is a diastolic murmur heard at the left border of the sternum, or at the base, or at the apex, even though the murmur is heard only at the end of a forced expiration he has an aortic insufficiency and the prognosis is not good. If he has a presystolic murmur and a failure of the congested type or auricular fibrillation, he has mitral stenosis and the prognosis is poor. If he has a systolic murmur at the apex and an enlarged heart and a history of infection, he has mitral insufficiency and the prognosis may not be very bad, as these cases respond to rest and

digitalis. If he will limit his activities and not use up his cardiac reserve, he can live much longer than the patient with mitral stenosis or aortic regurgitation. We have to remember in giving our prognosis that our diagnosis of mitral disease is not always confirmed by autopsy.

Pericarditis is common, if watched for. It is found most often by the medical student and the interne and the pathologist. It is easy to overlook as the friction rub may be present for only a short time, perhaps an hour or two, and the effusion may be very slight, not enough to cause mechanical embarrassment. Perhaps it is just as well for the patient that pericarditis is not discovered oftener, because when there is fluid, there is a temptation to aspirate, and generally the effusion will take care of itself. Pericarditis may occur in the course of rheumatic fever, generally following endocarditis, as shown by friction rub, or indistinct heart sounds, or increase in cardiac dullness, or it may occur as a terminal thing, as shown by the pathologist.

There may be structural change in the myocardium, chronic myocarditis, as shown by weak or impure sounds, by limited field of activity, or by failure of the anginal or congestive type, or by irregularities.

It is always quite worth our time to look for the cause of precordial pain, especially if it follows exercise. We should note the character and distribution of the pain, and the action of the patient during the pain, and the effect of nitroglycerine. It is common to have pain in the left chest due to muscular strain or infected teeth. These are more apt to occur in young adults. After middle life it is safer to get an electrocardiogram of any patient who complains of pain around the heart, and it is safer to give a guarded prognosis.

The irregularities are divided by Lewis into seven classes,—sinus arrhythmia, heart block partial or complete, premature beats, paroxysmal tachycardia, auricular flutter, auricular fibrillation and pulsus alternans.

In sinus arrhythmia the impulse arises in the s-a-node at irregular intervals. The auricular and ventricular complexes are normal but the rate is irregular. It is of no clinical significance. At times it is impossible to diagnose sinus arrhythmia without the electrocardiogram.

In heart block there is a defective conduction of the impulse from the auricle to the ventricle. It may be a delayed conduction or it may be cut off entirely. The three common causes of heart block are sclerosis, inflammation, and digitalis. The electrocardiogram is a great help in differentiating heart block from premature beats, and from bradycardia and from a slow auricular fibrillation.

In paroxysmal tachycardia the impulse arises in the annular wall node at an abnormally high rate. The attacks begin and end abruptly. The main point in diagnosing paroxysmal tachycardia is that the rate does not change from minute to minute or with exertion or change of

position. As Dr. Levine has shown, the rate should not vary more than two beats per minute. That allows for the error in counting. There is no treatment except pressure on the vagus. The patient may stop the attack himself by holding the breath, stooping or vomiting.

Auricular flutter is a condition in which the auricle beats regularly at a very rapid rate, from 200 to 321 a minute. It is practically impossible to detect flutter without the electrocardiogram. We may suspect it when a patient with a moderately rapid pulse has symptoms that are too severe for our clinical findings. If we give digitalis in large doses till we get a slower rate and fibrillation, and then withdraw it and get a normal rhythm we may be quite sure that we had flutter.

In auricular fibrillation some part of the auricle is constantly contracting, but the movement as a whole is more or less incoördinate. The pulse is totally irregular. If the rate is over 100 there are some beats that do not go through to the radial and we have a pulse deficit. If the rate is increased by exercise or fever the irregularity decreases with increase of rate. The prognosis depends on the rate at which we are able to hold the heart with digitalis, and on the effect of quinidine. A patient with fibrillation of the congestive type should be given rest in bed with digitalis in full doses. If the fibrillation persists after he is digitalized, as shown by the change in the shape of the T wave or as shown by the clinical improvement, or the coupled beat or the vomiting, he may be given quinidine.

Apparently we have in quinidine a very valuable remedy for auricular fibrillation. Our experience at the City Hospital has been about the same as reported by others. We help about half of the cases—some of them for only a day or two, some for a much longer period. We are inclined to think that quinidine is indicated and gives the best results in cases of short duration, where the irregularity is a cause of discomfort, either from heart failure or from its mental effect. The patient should be kept in bed and watched very carefully. It is better to have the patient in the hospital where the effect of the quinidine can be checked up with the electrocardiogram.

Nurses should be given a stethoscope. It is impossible to get the heart rate of a fibrillation by the radial pulse.

Patients with cardio-vascular syphilis come to us when they are in the late forties or early fifties. They complain of precordial pain and shortness of breath. Dr. Levine has found that syphilis attacks the aorta rather than the myocardium. They have a diastolic and perhaps a to and fro murmur at the base. The Wassermann is not always positive. They should have a 7-foot plate. Syphilitic heart disease differs from rheumatic in that the disease is progressive. The active process is going steadily on. Our only hope is to be able to stop it. We cannot restore the damaged tissue. I think that it is considered better treatment to give the iodides and mercury

before giving small doses of 606. We can always give an unfavorable prognosis.

As to the treatment of heart failure—one may have heart disease for years and not know it unless he has been told about it, and when a heart is unable to sustain one at the level at which he is accustomed to live, he has heart failure with shortness of breath, edema, cyanosis and orthopnoea, or he has precordial pain.

If the failure is of the congestive type we prescribe rest and digitalis, and a limited field of activity.

Digitalis is not given because there is a murmur, but because the heart is not able to do its work without help. There is one murmur that is an indication for digitalis and that is the systolic murmur of a relative mitral insufficiency. As the patient becomes digitalized the heart becomes smaller and the murmur disappears.

If digitalis is indicated, it should be given in sufficiently large doses to get its full therapeutic effect. It is better to use a preparation with which you are familiar, and which has given you results before. Then if you do not relieve your patient it is because you are not giving a large enough dose. Now and then you will find a patient in whom you get your toxic effect before you get your therapeutic effect. In these cases you have to depend on rest.

Heart disease should be prevented rather than treated. If we can prevent rheumatic fever by removing the foci of infection, or if we treat rheumatic fever with full doses of salicylates, and long convalescence, we will lessen the number of rheumatic hearts.

Important points in appraising a heart case are: (1) etiology, personal history, rheumatic, luetic or sclerotic. (2) structural damage done, valve lesions, size of heart, etc. (3) Functional state, amount of work that causes discomfort.



THE COURSE OF HUMAN DESTINY.

The Yale University Press is sending a circular through the mail setting forth the opinions held by Ellsworth Huntington, Research Professor of Geography in Yale University. He endorses the attitude of astrologers of old, who told the people that stars control human destiny. Dr. Huntington's assertions are founded on his explorations in Western Asia, supported by subsequent investigations in Mexico and Central America. From these observations he asserts that there is a definitely established fact of relationship between climate and human progress.

He will bring out in a book, entitled "Climate Changes: Their Nature and Causes," the theory that our climate is controlled by the sun spots, which are the result of conjunction of the planets and the approach of stars.

Charts have been made of the positions of the stars over a period of 140,000 years, 70,000 years in the past and 70,000 years in the future. Past history, it is claimed, shows that

events of the past correspond with certain positions of the heavenly bodies, and since astronomy can plot the relation of these bodies in the future, coming events can be foretold. This is interesting, if true.

BOARD OF HEALTH OF PORTLAND, ME.

The annual report of the Board has come to hand and shows that the death rate for this city is 14.39. Tuberculosis (all forms) shows a death rate of 71.8 per 100,000 population, cancer shows 147.7, organic disease of the heart 155, pneumonia and bronchitis 122.8, nephritis 123.8; deaths of infants under one year had a rate of 58 per 1,000 live births. This Board has taken measures to study the possibility of the introduction of plague by infected rats and has presented in this report cogent reasons for the adoption of preventive measures on our sea coast. Although 2,010 rodents taken in Portland were killed and examined at a cost of \$1,950.18, no plague infected animals were found, but the prediction is made that the Atlantic sea coast will not long enjoy the present freedom from plague.

The report shows that the common problems of preventive medicine are being efficiently dealt with in this city.

WEEKLY HEALTH INDEX.

The Department of Commerce at Washington reports that telegraphic returns from 63 cities, with a population of 27,000,000, for the week ending September 9, indicate a mortality rate of 10.4 as against 10.7 for the corresponding month last year.

The highest rate (18.8) appears for Birmingham, Ala., and the lowest (4.5) for Springfield, Mass. The highest infant mortality rate (15.4) is for Fall River, Mass., and the lowest for Salt Lake City, which reported no mortality.

The mortality rates for June, July and August, of this year, are lower than for the same period of last year.

VISITS OF JAPANESE MEDICAL LEADERS TO AMERICA.

SOME of the most eminent physicians and surgeons of Japan will visit the United States and Canada, probably next spring, in response to an invitation from Dr. George E. Vincent, president of the Rockefeller Foundation, which has been accepted by the Minister of Education. According to the invitation from Dr. Vincent, the Japanese mission is to be composed of four or five of the medical leaders, and about three months will be spent in visiting the principal

hospitals, universities, medical schools and other scientific centers there, during which time they are to be under the guidance of some leading medical men in the United States. As the guests of the Rockefeller Foundation, all the expenses will be met by the foundation. The selection of the mission is entrusted at the request of the Minister of Education to the Japanese Committee for the Furtherance of Graduate Medical Study in the United States, the chairman of which is Baron Sakatani and which comprises eight or nine of the leading physicians and surgeons of the empire. The invitation will be only one result of a movement now under way to bring the medical, surgical and scientific professions of America and Japan closer together. The same result is also being sought by means of scholarships awarded Japanese doctors for graduate study in American universities. Three Japanese students are already in the United States on such scholarship, two given by the Rockefeller Foundation and one by the Mayo Foundation.—*The Japan Medical World.*

THE PREVENTION OF PERITONEAL ADHESIONS.

TAKASHI KUBOTA, working in the Department of Surgery, Medical College of Kyushu Imperial University, Japan, claims to have demonstrated the value of papain in preventing peritoneal adhesions. He first produced peritoneal adhesions by irritating certain parts of the peritoneum and then used control animals subjected to the same treatment but applying solutions of papain to the irritated areas. His conclusions are as follows:

1. The local application of one hundred to two hundred thousand times dilutions of Koktol in physiological salt solution satisfactorily prevented the peritoneal adhesions in animal experiments.

2. Koktol has no toxic action with the doses I used.

3. Koktol in powder form is not deteriorated at dry heat of 100 c. for sterilization.

4. Applications of Koktol solution at the points of anastomosis of the gastro-intestinal tract do not prevent from adhesion and healing of the wounds. However, the abnormal adhesions around the wounds were prevented by the applications. (Koktol is papain.)

BELGIUM AND THE VENEREAL MENACE.

THE National Council for Combating Venereal Diseases, London, states that during the war and the German occupation of Belgium, venereal disease spread in an alarming manner. The Government Board of Health has now worked out a new programme, with the coöperation of existing health organizations. The principal

measures consist in the free distribution of salvarsan and other drugs, the reinforcement of the sanitary staff and in the choice of specialists recognized by the Government to attend medical clinics and dispensaries.

Since coercion has not been deemed advisable in Belgium, a National League for Combating Venereal Disease has been formed, and is working with the help of these committees: medical, moral propaganda, and social assistance committees. The activities of these committees are outlined as follows:

(a) **MEDICAL WORK.**—Consists principally in treatment. It has been partly helped by the Government.

The League will have to build as many model dispensaries as possible, and invite all medical men to send their patients there for treatment.

The League will have to complete the training of the doctors themselves concerning the treatment of venereal disease; it will have a member on the University Board, so that the teaching of these diseases will have the place that it requires in the programme of the courses, and be made compulsory; it will organize special courses for young doctors; it will see that new legislative measures will be taken without delay against quack treatment and false advertisements in the papers.

(b) **MORAL PROPAGANDA.**—This commission will spread the knowledge of venereal diseases through the whole country and indicate the best means to prevent them, and to cure them.

This will be done by means of lectures, press articles, tracts, pamphlets, posters, etc.

Lectures will be organized all over the country.

They will be given in a series of three, as we consider that one single lecture does not make a deep enough impression.

One will be on syphilis, one on gonorrhoea, and one on either moral culture or social help, or combining both subjects.

These lectures will vary according to the audience; to the general public, to medical students, to young men at universities, to boys before they leave college, to teachers, to soldiers and officers, to workmen, to women, and to parents.

Each member of the audience will be asked for his name and address, so that pamphlets and tracts may be sent to him later on, which will keep his interest awake on the subject.

The lecturers will be either voluntary or paid by the League.

(c) **SOCIAL WORK.**—This commission will help the victims of venereal diseases, especially women and children.

Homes, hostels, and maternity hospitals will be started as soon as possible for patients suffering from this disorder, crèches and "pouponnières" for heredo-syphilitic children.

CHILDREN PAY THE PENALTY.

It is most unfortunate that the children, who have nothing to say as to what means shall be used for their protection against the preventable diseases, are, as a rule, the ones who pay the penalty for the misguided actions of those who are responsible for their proper care and protection.

And especially is this true in the case of the children of parents and guardians who are opposed to vaccination as a means of protection against smallpox. Such children may be well termed the victims of anti-vaccination propaganda.

For many years the history of outbreaks of smallpox has shown that those of the most serious character have always occurred in communities where anti-vaccination propaganda has been most effective.

For example, Dr. W. M. Dickie, Secretary of the California State Department of Health, tells us that there was a marked increase in the concentration of smallpox upon the age groups which have the highest proportion of unprotected persons. In support of this he presents some statistics bearing upon this phase of smallpox incidence in that state and covering the years from 1916 to 1921. These figures show that in 1916, 36.6 per cent. of the cases of smallpox occurring in that year were of persons below fifteen years of age. In 1921 this proportion had increased to 45.8 per cent. And then he adds that, as the number of unprotected children of school age increases through the opposition and influence of anti-vaccinationists to compulsory vaccination as a condition to school attendance, the number of smallpox cases among the young also increases.

The following figures, prepared by Dr. Dickie, tell their own story and also fully support the contention that smallpox incidence is always highest among those unprotected by vaccination:

*Year	Total No. of Cases	Cases in Persons from 5 to 14 Years of Age
1916	205	50
1918	654	191
1919	1,560	531
1920	4,218	1,471
1921	5,278	2,126

*Data for 1917 not obtainable.

It is also of interest to note that in 1920, 341 of these cases were in children under five years of age, and in 1921, 392 cases under five.

After a study of the above carefully compiled and authentic figures and the statements in connection therewith, would it not be a wise thing to have your children properly vaccinated and thus protect them against this loathsome disease? —[Chicago School of Sanitary Instruction Bulletin.]

THE LIMITED SELECTIVE EMBARGO ON SYNTHETIC ORGANIC CHEMICALS AND MEDICINALS.

AN appeal has been sent to physicians of America to use all proper influence with Congress to secure the continuance of the dye and chemical content act in order to give sufficient time for a thorough study of rates of duty required to protect American industry along these lines.

If any physician is uncertain about the best course to pursue, he will be aided in his consideration of the subject by reference to the editorial which appeared in the *Journal of the American Medical Association*, August 12, 1922.

Obituaries.

NATHANIEL R. PERKINS, M.D.

DR. NATHANIEL ROYAL PERKINS, assistant secretary of the Massachusetts Board of Registration in Medicine, dropped dead in front of his home in Dorchester, September 22, 1922.

He was born in Plainville, Vt., Sept. 10, 1847, attended the Newbery Seminary and later the Hahnemann Medical College in Philadelphia, graduating from the Boston University School of Medicine in 1876. He settled in practice in Winchendon, moving to Dorchester in 1890, where he had practised until the time of his death. He became a member of the Board of Registration in Medicine in 1902 and had served continuously since. In 1888 he was a member of the legislature, representing the town of Winchendon. He was a Mason and a member of the Massachusetts Homeopathic Medical Society since 1880.

He is survived by his widow, one daughter, and a son, Dr. R. L. Perkins, of Harrisburg, Pa.

He was always deeply interested in the affairs of that society having served as President, and on important committees. He delivered the oration at the last annual meeting as a member of the Board of Registration in Medicine. He was interested in all matters which might be of assistance to reputable practitioners. With these objects in view he was an ardent advocate of reciprocal relations between the States. Since acting as assistant secretary he was ambitious to develop the employment of practical methods.

PHYSICIAN MURDERED WHILE GIVING FIRST AID.

DR. HENRY VOSE REYNOLDS of Brookline was shot and killed by a negro janitor in front of 1768 Beacon Street, Brookline, while giving first aid to victims of previous charges of the janitor's double-barrelled shotgun, on the evening of September 21, 1922.

Dr. Reynolds happened to be passing the spot in his automobile when the janitor of the apartment building, who had been recently discharged and had been drinking, opened fire from the basement door on his employer and a policeman without warning. Seeing the two wounded men fall to the sidewalk, Dr. Reynolds sprang from his car and ran to their assistance, calling to the janitor not to fire again. The next shot killed Dr. Reynolds instantly, while bending over one of the men, the entire charge lodging in his neck and shoulder.

Dr. Reynolds was born in Canton sixty-one years ago, and took his M.D. at Boston University School of Medicine in 1885. After taking post-graduate courses at Harvard Medical School and in Vienna, he settled in practice in his native town, then moved to Dorchester and joined the Massachusetts Medical Society in 1889. He moved to Brookline in 1916 and had practised there since. He was examiner of the State Mutual Life Insurance Company and was active in Masonic affairs. He is survived by his widow and one married daughter.

NOTICES.

THE MASSACHUSETTS MEDICAL SOCIETY.

STATED MEETING OF THE COUNCIL.

A stated meeting of the Council will be held in John Ware Hall, Boston Medical Library, 8 The Fenway, on Wednesday, October 4, 1922, at 12 o'clock noon.

Business:

1. Report of Committee on Membership and Finance, as to Membership.
2. Petitions for restoration to the privileges of fellowship and reports of committees to consider such petitions.
3. Appointment of Auditing Committee.
4. Appointment of delegates to annual meeting of Vermont State Medical Society at Burlington, October 12 and 13, 1922.
5. Report of Committee on Membership and Finance, as to Finance.
6. Report of Committee to draft petition to the General Court for authority to hold a larger income.
7. Report of Committee on meetings of New England Medical Societies.
8. Report of the delegation to the meeting of the House of Delegates of the American Medical Association at St. Louis.
9. Report of the Committee on Public Health on definitions of the terms: "public health nurse" and "functions of the public health nurse."
10. Appointment of assistants to the Committee of Arrangements for the Annual Meeting in Pittsfield, June 12 and 13, 1923.
11. *Incidental Business.*

WALTER L. BURRAGE,
Secretary.

Boston, September 27, 1922.

Councillors are reminded to sign one of the attendance books before the meeting. The Cotting Lunch will be served in the Supper Room immediately after the meeting.

SUFFOLK DISTRICT MEDICAL SOCIETY.

MEETINGS FOR 1922-1923.

OCTOBER 18, 1922. Stated Meeting.
"Caesarean Section." Dr. John O. Polak, of Brook-

lyn, New York, Professor of Obstetrics and Gynecology, Long Island College Hospital. Discussion to be opened by Dr. P. S. Newell and Dr. R. L. DeNormandie. Lantern slides.

NOVEMBER 22, 1922. Combined Meeting of the Boston Medical Library and the Suffolk District Medical Society.

"Rehabilitation." "The Pay Envelope instead of the Park Bench." Introduction of the subject and certain preventive Surgical Measures, Dr. Fred-eric J. Cotton.

Certain Medical and Mental Aspects, Dr. Herbert J. Hall.

The State Institutions, Dr. John H. Nichols.

Certain Legal Aspects, Joseph A. Parks, Esq.

The Industrial Side, Dr. Francis D. Donoghue.

Occupational Therapy, Drs. E. G. Brackett and John D. Adams.

Physiotherapy, Dr. Frank B. Granger.

Discussion opened by Drs. Francis W. Anthony, of Haverhill, and James W. Sever, of Boston.

DECEMBER 27, 1922. "Surgical Lesions Occurring in Diabetics: their Peculiarities and Management,"

Dr. Elliott P. Joslin, Boston. An account of the experience in this field of the Major Hospitals of Boston, by members of the Staffs.

JANUARY 31, 1923. "Epidemic Encephalitis," Dr. E. W. Taylor, Boston.

FEBRUARY 28, 1923. "Colitis," Dr. Henry F. Hewes, Boston.

MARCH 28, 1923. "A Review of What Surgery Can Accomplish in Diseases of the Thoracic Organs, with a Forecast of the Future," Dr. Howard Lillenthal, New York.

APRIL 25, 1923. Annual Meeting.

"The Record of the past twelve years in Syphilology, with a Forecast of the Future." A series of 10-minute papers. Dr. C. Morton Smith, Boston, will preside.

Election of officers.

R. H. Miller, Secretary.

J. S. Stone, President.

NORFOLK DISTRICT MEDICAL SOCIETY.

EXTRA SPECIAL.

There will be an extra special meeting of The Norfolk District Medical Society at the Roxbury Masonic Temple, 171 Warren St., Tuesday, evening, October 3, at 8.15 P. M. sharp.

The purpose of this meeting is to try to arouse interest in Schick Test and toxine-antitoxine immunization which is now receiving so much attention by the Health Departments of both the City and State.

The programme will cover many phases of the subject and has as speakers men of wide experience and much enthusiasm.

It behooves every member who has the health of the community and his personal interest at heart to attend this meeting.

The speakers are: Dr. Francis X. Mahoney, Commissioner of Health, Boston; Dr. John A. Ceconi, Epidemiologist, Boston; Dr. Eugene R. Kelley, Commissioner of Health, State of Massachusetts; Dr. Benjamin White, Director of State Laboratory; Dr. Edwin H. Place, Resident Chief, South Department City Hospital; Dr. William H. Devine, Director of Medical Inspection, Boston Schools.

Open Discussion. Collation.

The Censors meet for the examination of candidates, Thursday, November 2, 1922.

BRADFORD KENT, M.D., Secretary.

798 Blue Hill Avenue, Dorchester.

AMERICAN PUBLIC HEALTH ASSOCIATION TO MEET IN CLEVELAND.

The Fifty-First Annual Meeting of the American Public Health Association will be held at Cleveland, Ohio, October 16-19, 1922. Headquarters will be at Hotel Statler.

The following sections will conduct programs: Public Health Administration, Laboratory, Vital Statistics, Sanitary Engineering, Industrial Hygiene, Food and Drugs, and Child Hygiene. There will also be special programs on Public Health Publicity and Education and Public Health Nursing.

An interesting part of the general sessions of the program will be a summary and conclusions from a survey of eighty-five city health departments, conducted by a committee under the chairmanship of Professor C. E. A. Winslow. A second feature will be a symposium on the subject, "How Can We Safeguard Public Health from Political Interference?"

Reduced railroad rates have been granted to members of the Association.

Further information may be obtained from the Secretary of the Association at 370 Seventh Avenue, New York City.

Secretaries of societies are requested to forward notices of coming meetings for publication. Reporters will please forward early reports of meetings that have been held with a concise account of the salient features.

UNITED STATES CIVIL SERVICE EXAMINATION.

RESEARCH ASSISTANT IN CHILD HYGIENE.

Receipt of Applications to Close October 10, 1922.

The United States Civil Service Commission announces an open competitive examination for research assistant in child hygiene. Vacancies in the Children's Bureau, Department of Labor, at \$1600 to \$2000 a year, and in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. For particulars apply to United States Civil Service, Washington, D. C.

DISEASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING SEPT. 9, 1922.

<i>Disease.</i>	<i>No. of Cases.</i>	<i>Disease</i>	<i>No. of Cases.</i>
Anterior poliomyelitis.....	19	Ophthalmia neonatorum.....	15
Chicken-pox.....	14	Pneumonia, lobar.....	20
Diphtheria.....	104	Scarlet fever.....	55
Dog-bite requiring anti-rabic treatment.....	4	Syphilis.....	22
Encephalitis lethargica.....	1	Suppurative conjunctivitis.....	7
Epidemic cerebrospinal meningitis.....	3	Tetanus.....	2
German measles....	1	Trachoma.....	2
Gonorrhea.....	108	Tuberculosis, pulmonary.....	119
Influenza.....	1	Tuberculosis, other forms.....	17
Malaria.....	1	Typhoid.....	26
Measles.....	38	Whooping cough.....	115
Mumps.....	12	Hookworm.....	4

WEEK ENDING SEPTEMBER 16, 1922.

<i>Diseases.</i>	<i>Cases.</i>	<i>Disease.</i>	<i>Cases.</i>
Anterior poliomyelitis.....	14	Septic sore throat.....	1
Chicken-pox.....	14	Syphilis.....	60
Diphtheria.....	99	Suppurative conjunctivitis.....	6
Dog-bite.....	9	Tetanus.....	1
Encephalitis lethargica.....	3	Trachoma.....	1
Gonorrhea.....	137	Trichinosis.....	1
Influenza.....	1	Tuberculosis, pulmonary.....	117
Malaria.....	1	Tuberculosis, other forms.....	14
Measles.....	46	Typhoid.....	23
Ophthalmia neonatorum.....	11	Whooping cough.....	158
Pneumonia, lobar.....	18		
Scarlet fever.....	58		

BOOKS RECEIVED FOR REVIEW.

The JOURNAL acknowledges the receipt of the following books for review:

Le Probleme du Cancer. By W. S. Bainbridge. Translated by Dr. Hertoghe. Published by A. Uyst-pruyst, Louvain, and O. Doin, Paris. 484 pages.

Aids to Bacteriology. By William Partridge. Published by William Wood & Co. 276 pages. Price \$1.75.

Manual of Physio-Therapeutics. By Thomas Davey Luke. Published by Wm. Wood & Co. 480 pages. Price \$6.

Diseases of the Thyroid Gland. By Arthur E. Hertzler. Published by C. V. Mosby Co. 245 pages. Price \$5.

Ten Post-Graduate Lectures. Various Authors. Preface by Rt. Hon. Sir Clifford Albutt. Published by Wm. Wood & Co. 216 pages. Price \$3.50.

General Medicine. Weaver, Brown, Preble, Sippy. Practical Medicine Series 1922, Volume 1. Published by Year Book Publishers. 715 pages. Price \$3.

Mortality Statistics 1920. Bureau of the Census. 667 pages.

Crime, Its Causes and Treatment. By Clarence Darrow. Published by Thomas Y. Crowell Co. 292 pages. Price \$2.50.

Kompendium der topischen Gehirn und Rückenmarkdiagnostik. von Robert Bing. Published by Urban & Schwarzenberg, Berlin and Vienna. 242 pages. Price Mk. 540.

Obstetrics for Nurses. By Joseph B. DeLee. Published by W. B. Saunders Co., Philadelphia, Pa. 525 pages. Price \$3.

MARRIAGE ANNOUNCEMENT.

The marriage is announced of Dr. Richard H. Miller of 402 Marlboro Street, Boston, to Miss Georgina Mary Jardine of Moncton, N. B.

SOCIETY MEETINGS.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue. The incomplete details and omission of names of many societies is because the information has not been furnished, although the JOURNAL has requested information for publication. Free publication of dates of meetings may accommodate many members of societies. Several physicians have spoken of the importance of having a schedule of meetings published so that arrangements may be made for special meetings on dates which may not conflict.

It may be possible to adopt the custom of the publication of notices of stated meetings in the JOURNAL and if this is generally understood, secretaries of societies could save time and expense. If general cooperation can be secured this plan can be made permanent.

DISTRICT SOCIETIES.

Barnstable District:—Hyannis.—November 3, 1922, February 2, 1923, (Annual Meeting).—May 4, 1923.

Bristol North, Bristol South, Barnstable and Plymouth Districts will hold joint meetings sometime this fall.

Bristol South District:—Fall River.—November 2, 1922, May 3, 1923.

Eastern Hampden Medical Association:—Springfield, October 5, 1922.

Essex North District:—Haverhill, (Semi-Annual Meeting).—Jan. 8, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting).—May 2, 1923.

Essex North, Essex South, Middlesex North and Middlesex South Districts will hold joint meetings October 18. Place undecided.

Hampden Districts:—With Hampshire District in Holyoke. Regular meeting in October.

Norfolk District:—Extra Special Meeting at the Roxbury Masonic Temple, 171 Warren Street, Tuesday Evening, October 3, at 8.15 P. M., sharp, to arouse interest in Schick Test and Toxine-antitoxine immunization. An exceptional list of speakers. Open discussion and collation.

Suffolk District:—Stated Meeting, October 18, 1922. Combined meeting of Boston Medical Library and Suffolk District, November 22, 1922; December 27, 1922; January 31, 1923; February 28, 1923; March 28, 1923; Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District:—Meetings Wednesday, October 25, 1922; Wednesday, January 31, 1923.

The four western districts plan to hold a joint meeting early in October.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

NEW ENGLAND TUBERCULOSIS CONFERENCE, Augusta, Maine.—September 28, 29 and 30. Sessions will be held at the State House. Headquarters at the Augusta House.

September 28. Speakers: Dr. Arthur L. Wallace, Dr. Stephen J. Mosher, R. V. Spencer, Miss Elena M. Crouch, Dr. Charles Duncan.

September 29. Speakers: Dr. E. O. Otis, Dr. R. B. Kerr, Dr. J. Pinckney, Basil G. Eaves, Dr. E. R. Kelley, Dr. E. D. Merrill.

September 30. Speaker: Dr. J. C. Cobb.

At noon a modern health crusade luncheon will be held at the Augusta Hotel. Speaker will be Harold W. Slocum.

Massachusetts Medical-Legal Society will meet Wednesday, October 4, 1922, at 2 P. M., at the Boston Medical Library. Ernest L. Hunt, Secretary.

October, 1922. Boston Tuberculosis Association. Tuberculosis Institute for Physicians will be held on October 5 and 6 at the Massachusetts General Hospital, Bernice W. Billings, Boston, Executive Secretary.

The New England Society of Psychiatry will hold its next meeting on October 5th, at the Connecticut State Hospital, Middletown, Connecticut. Readers: Dr. Walter Timme and Frankwood E. Williams, New York City.

New England Dermatological Society, Wednesday, October 11, 1922, at 3:30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

The Fifty-First Annual Meeting of the American Public Health Association will be held at Cleveland, Ohio, October 16-19, 1922. Headquarters will be at Hotel Statler.

The American Association of Oral and Plastic Surgeons will hold their annual meeting at the Medical Library, Boston, on October 20th and 21st.

Clinical Congress of the American College of Surgeons will be held in Boston, Mass., on October 23-27, 1922, Franklin H. Martin, Chicago, Director-General.

Massachusetts Association of Boards of Health, October 26, 1922, Boston, Mass., W. H. Allen, Mansfield, Mass., Secretary.

New York and New England Association Railway Surgeons 32nd Annual Meeting at New York City, October 28, 1922, Donald Guthrie, Sayre, Pa., Secretary.

November, 1922. Massachusetts Society of Examining Physicians, (Date and place of meeting undecided), Hilbert F. Day, Secretary. National Cancer Week, November 12 to 18.

December, 1922. New England Dermatological Society Meeting, Wednesday, December 18, 1922, at 3:30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary.

January, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston, W. H. Allen, Mansfield, Mass., Secretary.

February, 1923. New England Dermatological Society Meeting, February 14, 1923, at 3:30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

March, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary.

April, 1923. New England Dermatological Society Meeting, April 19, 1923, at 3:30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston, W. H. Allen, Mansfield, Mass., Secretary.

May, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided). American Pediatric Society Meeting, May 31, June 1, and 2, 1923, at French Lick Springs Hotel, French Lick, Ind., H. C. Carpenter, Secretary.

June, 1923. American Medical Association, San Francisco, June 25-29, 1923, Alexander R. Craig,* Chicago, Ill., Secretary.

July, 1923. Massachusetts Association of Boards of Health, July 26, Adamsnet, W. H. Allen, Mansfield, Mass., Secretary.

*Deceased Sept. 2, 1922.

SINS OF OMISSION AND COMMISSION.

Sir Robert Jones says that medical sins of omission and surgical sins of commission would both be prevented by a closer affiliation of these great branches of the medical profession.

Presidential address, Royal Society of Medicine.)

The Boston Medical and Surgical Journal

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Original Articles.

NUTRITION AND GROWTH IN RELATION TO TUBERCULOSIS.*

BY WILLIAM R. P. EMERSON, M.D., BOSTON.

THE statement that almost every child is infected by tuberculosis before he reaches the age of 18 ought to be accompanied by a further statement as to the effect of lowered nutrition in making active a dormant process. It is fair to say that the prevention of malnutrition means to a great extent the prevention of tuberculosis.

This preventive work must center in the home. We may bring public sanitary conditions to a high level, and overcome many other handicaps of serious import, but unless parents are made to understand the nutritional condition of their children, and how to keep them up to a normal standard of health, other efforts to save them from tuberculosis are largely vain. The task of bringing into the home this kind of health education is one of the things which our nutrition program undertakes to accomplish.

Through the nutrition class a well-tested program, based on careful clinical studies, is applied to the problem. The mere weighing and measuring of the children in a particular school will so focus attention upon the need of better conditions of growth as to bring about a marked improvement while the new impulse lasts. This

has led to the organization of many types of classes which make good beginnings, but lead to overconfidence on the part of uncritical sympathizers who feel sure that the way out has been discovered. It is not enough, however, to establish any kind of a class, and merely make a good start. The program should be planned so that the underweight children will continue their efforts until they have gained weight in proportion to their height, and have been trained in food and health habits which will prevent a relapse into their old condition.

The weight-for-height standard has been adopted after long-continued clinical experience as the best single test of nutritional condition that we have. To allow amply for natural variations in type and build, we have worked out a "safety zone" running from 7 per cent. under the average weight line to 20 per cent. above it. I have never found a child, or had one brought to me, whose weight-height ratio lay habitually below this zone, who did not show other clear signs of malnutrition.

The causes of malnutrition are many and various, but there are few cases which cannot be classed under one of the following five groups: Physical defects, especially naso-pharyngeal obstructions; lack of home control; over-fatigue; faulty food habits, with improper and insufficient food; faulty health habits. We have tried many programs to overcome these causes, but have secured adequate results only when cooperation has been effected between the four forces which bear an essential relation to

*Address given at the Sociological Section of the National Tuberculosis Association, Washington, D. C., May 5, 1922.

the child's health. These four forces are: the home; medical care; the school and other social agencies; and the child's own interest.

In this summary of the "five causes" and of the "four forces" to remove them, the whole ground of the nutrition program is covered, and further discussion is only an elaboration of details. While largely medical, the problem is also fundamentally social, and the home factor is of the greatest importance. For this reason, with the first step in the program we seek the coöperation of the parents. Every child who is found to be underweight needs a thorough physical-growth examination, and we make it a rule that this shall be given only in the presence of one or both parents. Their help is needed in the case history and social examination which follows, and if a mental examination is required it is important that they be fully informed of the results.

When the nutrition class is organized we again urge the presence of the mothers at the weekly meetings, and in the social and medical directions there given they receive the instruction needed in each individual case. Health propaganda and general talks on hygiene serve an excellent purpose, but the actual results achieved through them cannot be compared with this direct coördination of medical care with the home.

The physical, mental, and social examinations, when made with proper care, serve to locate the cause in a large percentage of cases. There are always, however, a small number of children—problem cases—who call for further study such as can only be given in a well-organized diagnostic clinic.

The first of the five causes of malnutrition is especially evident in groups of "contact" cases, possibly because the physician who is looking for signs of tuberculous infection is less concerned with other physical defects. I have found 60 per cent. of diseased adenoids and tonsils in a group of pretubercular children who had been under care for months, and in some instances for over a year.

In no other group do we find more serious disintegration of the home, with a consequent lowering of the standard of control, which ranks second among the causes of malnutrition. The mother's care is necessarily centered upon the patient who is suffering from tuberculosis. Often the very stress laid upon adequate diet for the sick person leads to less care for the other members of the family. The old custom of breaking up the home when the breadwinner was tubercular subjected the children to various influences which did not make for harmony and control when the little flock was brought together again.

In working with families of this class I have been surprised at the failure of those who had them in charge to give training in the essentials of health. For example, a mother who had been under direction for several years for

the care of a tubercular husband had not received elementary instruction in matters of hygiene and food for the rest of the family. She was thoroughly willing to learn, and responded immediately to teaching and suggestions on these subjects, bringing her children up to normal weight within a very short time.

Cases of overfatigue among children exposed to tuberculosis are almost too numerous to mention. This is partly a result of the lack of home control, but also due to failure to recognize that such children are unequal to the demands of a full school program. I have seen children who were on the waiting list of a sanatorium attempting to carry a school program planned for the full energies of a normal well child, and sometimes following extra studies, such as music and dancing, outside of school hours.

A further word is needed concerning the last of the "four forces" named—the child's own interest. This is one of the most important factors aroused by the nutrition class, and success is almost impossible without it. The child who has come into contact with tuberculosis needs encouragement. He requires training in mental hygiene, not only that he may coöperate in the necessary treatment, but that he may not be oppressed with the idea that his family is doomed by the great white plague. The child who is sent to a tuberculosis clinic is at once stigmatized by his companions as a "pip" case. A nutrition class or clinic suffers from no such handicap. This is one of the reasons why a tuberculosis association can work more effectively, with children, under some other name.

On the other hand, the national and state tuberculosis associations, through the hold which the fear of tuberculosis has upon the public, have acquired a prestige which is an important asset in promoting any kind of health work. Nowhere has our nutrition program been more effectively demonstrated than in the work of the local association of Rochester and Monroe County, New York. The recent exercises in that city, when 120 children were "graduated" with certificates of normal health, mark an epochal step in health work with children.

The nutrition program should eventually come under the Board of Education, but demonstrations such as this must first be made by private organizations in order to educate the public to support the new measures when at last the municipality takes them over. The position of the local tuberculosis association is particularly favorable for the work through its contact with the Board of Health and with all the societies concerned in social responsibility for the welfare of children.

The beginning made in Rochester with children of both school and preschool age very naturally extended itself to the young people who are entering industry. This period of life is one of great strain. The change from the comparatively simple life of home and school

to the serious demands of industrial life calls for advice and counsel in the matter of health which few agencies are prepared to supply. The unit of this larger health program is the nutrition class adjusted to meet the conditions of employment. Here, as in the school classes, the weight chart serves as the most reliable indicator of the effect of the day's work on the child's health.

Classes can be established by many organizations and in many places, but a central organization is needed for general supervision and clinical research in order that the best developments may be constantly available. A broad program reaching out into private and parochial, as well as public, schools must be planned to meet the needs of an entire community, and the problems which constantly arise must be met in the right manner in order to gain and hold that public support which is essential to progress and permanency of results.

Up to the present time the teaching of nutrition and growth in medical schools has made little progress. But a start has been made, and it will not be long before these subjects are recognized as a fundamental requirement for all who undertake the problems of the prevention of disease. Our nutrition institutes, held primarily for the training of workers, have proved of value in the general program of educating the public to the importance of this work. Besides "selling the idea" of the value of nutrition work, they afford a means of contact between various organized agencies and persons who have already had training and experience along lines that fit into a broad program.

Results of the spread of these ideas are apparent in many places. In the clinics the main purpose is not merely to determine whether a child is sick, but also whether or not he is growing properly. In the schools there is growing appreciation of the difference in working capacity between well children and those who are underweight, undernourished, and malnourished. In the homes, parents are more and more returning to the practice of watching the child's weight throughout the growing period, instead of disregarding this important factor after the age of infancy.

Another important by-product—if I may use the term—is the reorganization of the home effected through the nutrition class. This is a result of the greatest significance. Through the instruction given to mother and child together we find that when we have rehabilitated a child we have also rehabilitated a home! A spirit of mutual helpfulness uniting parent and child makes for order and sanity. Such a home is a unit of strength in the community. Instead of chaos and anarchy, there is a condition of trust and security which makes for right living.

Every one of the "four forces" discussed must be recognized and applied in a comprehensive health program, but the keystone of the

structure lies in homes of the right kind. Back of the clinic, the school, the industrial center, the summer camp, the preventorium, the sanatorium—back of every agency concerned in the welfare of children—must be home coöperation. This is the best means of vitalizing child health work, and of preventing malnutrition and tuberculosis. Divorce the home from the other factors, and the greater part of what we are attempting meets with failure. When the child is made well in his own home, both mother and child learn the essentials of health, and through this health education the reconstruction of the home is accomplished.

EXHIBIT A—LANTERN SLIDES.

GROUP 1. Photographs showing defects and deformities resulting from malnutrition: Round shoulders, spinal curvature, fatigue posture, ptosis, flat feet, lines under eyes, and anxious expression indicating depression and mental retardation.

GROUP 2. Views of an open-air school in Pawtucket, R. I., where 16 children were provided with mid-morning lunches, Eskimo suits, coats for rest periods, playroom, and special teacher. The results of a year's work were a total gain of 2 per cent. less than the average rate of growth for the group because two of the essential forces were omitted, *viz.*: medical care, with complete examination, and home coöperation with the school program.

GROUP 3. Group photographs of graduates from nutrition classes in the Rochester public schools.

EXHIBIT B—A NUTRITION CLASS ORGANIZED BY MRS. R. K. EARLE.

A class of 14 children used to illustrate various points, among them the following:

A child who had received extraordinary care during infancy, but at the age of twelve was twelve pounds underweight for height. Her mother brings her to the nutrition class regularly, and is very helpful in assisting other mothers to bring their children up to normal. A case of splendid coöperation once the need was known.

A boy, the son of a physician, whose condition was not appreciated until he received the complete physical-growth examination. This showed curvature of spine, fatigue posture, and other defects.

A boy who failed to gain for a whole month during his mother's absence from the city. On her return he made a good gain.

Other children showing malnutrition due to over-fatigue from too great school pressure or too many outside interests; also cases due to faulty food and health habits.

Sixteen nutrition classes are conducted in Washington, D. C., under the supervision of Mrs. Ernest R. Grant, of the Tuberculosis Association, co-operating with Dr. Joseph Murphy, Chief Medical Inspector of the Public Schools. A new class is to be started at the Juvenile Court at the request of Judge Sellars.

An interesting report is that of Miss E. S. Bailey, Nutrition Worker, showing the need of rest periods even during vacation. A class of 18 children who were warned against overfatigue at this time, and took their rest periods faithfully both morning and afternoon, gained 44 pounds during a two weeks' holiday. Another group of 18 who did not receive special caution before the vacation gained only 7.7 pounds in the same period. On the return to school the first group lost 9.7 pounds, and the second group 3.6 pounds, showing the effect of school pressure.

Miss Anita J. Turner, Assistant Director of Physical Education, reports 195 colored children enrolled in nutrition classes, which are held each week in place of the hour and a half allowed for physical exercise.

EXHIBIT (—CHARTS.)

100 charts of the first graduates from this year's Rochester, N. Y., class.

A city-wide campaign is being carried on in Rochester through public, private, and parochial schools, orphanages, summer camps, preschool groups, and working children in industry, under the supervision of Herbert J. Norton, Physical Director of the Public Schools, and Mrs. Ethel M. Hendricksen, Executive Secretary, Tuberculosis Association of Rochester and Monroe County.

SPECIAL TRAINING IN HOME NURSING.*

BY ALFRED WORCESTER, M.D., WALTHAM, MASS.

THE modern profession of nursing and the modern science of avoiding and destroying disease-producing germs have been the two great factors in the wonderful advance of medical practice during the last half-century. Together they have changed hospitals from dreaded pest holes into popular life-saving institutions, which have increased many hundred-fold. Fifty years ago no patient who could possibly avoid doing so went to the hospital. Nowadays it is quite the fashion to be born or to die there, and for surgical operations as well as for medical treatment patients go to the hospital as a matter of course.

What is the effect upon nursing of this trend toward community hospitalization? In the first place, it is important to remember that the early schools of nursing were organized as educational institutions,—in more or less close connection with the hospitals, it is true, but still quite separate from them. The first and most famous, the Nightingale School at St. Thomas's, the Massachusetts General Hospital School and the Bellevue School in New York, were thus organized. Some smaller schools in this country also began independently of the hospitals, but, so far as I know, only the Waltham Training School still follows the Nightingale School in retaining its independence.

The hospital ownership of its training school, although so profitable to the hospital, is nevertheless in many ways a hindrance to the advance of the nursing profession. No professional school can be thus subordinated without the sacrifice of its educational ideals. The labor of an apprentice learning a trade goes rightly to the profit of the master. But nursing is certainly not a trade, and yet it cannot be considered a profession while the product of the pupil nurses' labor goes to the support of an eleemosynary institution or into the pocket of the hospital's proprietor.

The student of a true profession must pay for her education either in cash or in work that is its equivalent, but such payment must go entirely to the support of the School. Formerly, all professional schools were thus supported, but such schools now depend more or less largely,

and in proportion to their excellence, upon their endowments. Large grants are being made for this purpose, but as yet very little has been given to nursing schools. The reason is plain. Educational funds cannot properly be given except to educational institutions, and this is one of the hindrances to the advance of nursing that comes from the hospital ownership of the training schools; but there is another hindrance even more serious.

It is not for the hospital's interest to train its pupil nurses for any other service than that needed in the hospital, and until a scarcity of applicants forced them to arrange for wider training, by combining with other hospitals or with visiting nursing institutions, even the special hospitals contented themselves with giving diplomas. This was an injustice both to the nurses and to the public, for graduates in nursing, as in medicine, are supposed to have had an all-round professional education, and not merely training for service in some specialty. Furthermore, between the hospital and the training school there is a conflict of interests; it is to the hospital's advantage to keep the pupil nurse in the work she has already learned to do well, while for the pupil's own sake her service should be changed as fast as she acquires proficiency. Were this educational principle followed, the usual course of hospital training might easily be shortened.

In the hospital ownership of the training school the most serious detriment is that the nurses during their pupillage are not trained for the kind of service most of them afterwards have to undertake, which is the nursing care of patients in their own homes. Although only hospital training can fit a nurse for hospital service, and although the fundamental principles of nursing can be taught in the wards, it is nevertheless true that hospital training alone does not and cannot fit a nurse for equally excellent home nursing service; and the great reason for the prevailing distaste of graduate nurses for private nursing is that most of them have not been adequately educated for it. Every nurse likes best to do what she can do best. If, for instance, she has proven her efficiency as an operating-room assistant, naturally she prefers such service to that of nursing a patient in his own home, unless, indeed, in the rare instances where the home has to be transformed into a temporary hospital for some surgical operation.

Probably few graduate nurses recognize their lack of special training in home nursing as the real reason of their distaste for it, and, in fact, there are other good reasons. For instance, private nurses are often employed by rich families where only lady's maid service is needed; too many hours of service are often expected; too little time is allowed for the nurse's recreation and sleep. Sometimes the food given is insufficient. Other members of the patient's family are not always agreeable associates, but all these reasons, and others like them, for the

*An address before the Middlesex County Nurses' Association, May 27, 1922.

prevailing dislike of graduate nurses for home nursing, are only subordinate. The real reason is, as has been stated, that more than hospital training is necessary to fit a nurse for perfect service in her patient's home, and very few nurses have had this extra training. If they have acquired proficiency as private nurses, it has been only in the hard school of experience, and at great cost both to themselves and to the families served.

What, then, it will be asked, is this necessary special training for home nursing? Obviously, only an outline of it, and the general principles involved, can be given within present limits.

There is no need of dwelling upon the necessity of getting along with only scanty or makeshift material, for the nurse's mother wit and common sense will triumph over such exigencies. Of far more importance than this usual shortage of proper material is the necessity of a self-dependence that cannot be acquired in hospital service where head nurses and house officers can be summoned to decide doubtful questions. Perhaps, out of the dim recesses of her memory the nurse alone must recall, if not the precise procedure, at least the general principle upon which her proper procedure depends. Fortunate for her if this first lesson in self-dependence comes while still a pupil nurse, before she is expected to know everything, and when from her instructor's next day visit she may receive competent endorsement or criticism of what she has done.

Training in the hospital teaches the nurse, besides her duties to her patients, her proper relation to the doctors, to her superiors, to her classmates, and to her juniors; but all she there learns of her proper relation to her patients' anxious families is how to shoo them out when visiting hours are over. In home nursing the sooner that particular lesson is unlearned the better, for success there depends upon utilizing for her patient's sake every anxious relative, all the friendly neighbors, and especially the servants. This requires an immense amount of tact. Some fortunate individuals are naturally tactful; some are not. But tact is acquirable; it is merely the effective expression of kindness.

Management of the family for the patient's advantage can be learned far more easily among those of moderate means than in wealthy homes. In this respect the pupil nurses, who generally are employed where high-priced graduate nurses could not be afforded, have a distinct advantage. Before graduation, before she is expected to know everything, it is far easier for the nurse to begin home nursing on a proper footing,—as the helper rather than as the superintendent of the family. Often the private nurse's greatest chance of helping, certainly at first, is in just standing ready and not in immediately supplanting the anxious amateurs who, of course, hate to surrender the care of their loved one.

"They also serve who only stand and wait."

Even if the nurse does know far better than the wife or mother how to take care of the patient, she does not care for him as they do, and for that very reason their clumsiness carries more comfort than her skill. The rough hands of the laborer may feel far tenderer to his suffering wife or child than the softest hands of the stranger nurse. Therefore, the nurse who has been trained only in the wards, and who considers herself in the same supreme charge of her private patient from the moment she enters his home, often fails not only to do what is best for the patient, but also often hurts the feelings of his family. Between assuming all the nursing service and undertaking that part of it which the family perhaps only gradually can be convinced they cannot so well perform, there is a vast difference; and the recognition of this essential difference,—between excellent and unacceptable service in home nursing,—is a hard lesson for fully trained nurses to learn. It is far easier learned by pupil nurses, and that is the great reason why pupil nurses' service is often preferred by families who do not even think of the greater expense of graduate nurse service.

In the wards the patient is considered only as an individual. In his home he is far more than that. The whole family is the real unit, and unless the home is made into a hospital, it is not possible for the nurse to give all her attention to the patient while ignoring the other members of the family. Sometimes it is necessary to make this transformation; but, if not necessary, such procedure is rightly resented by the family, if not also by the patient. Why, then, should he not have gone to a hospital? What comfort or advantage has he in staying at home?

Home nursing thus demands of the nurse not the service she has been trained to render, but an entirely different service. She knows how to establish hospital *régime*, but that is just what she must not do. Instead, she must rescue the imperilled home. And it is unfair to her, and to the public, to send her out to such service without sufficient preliminary training.

In the wards nurses very properly are conspicuous in the foreground. In the patient's home the more inconspicuous they are the better. The highest praise of the home nurse is that, except for the smoother running of the household, one would never know there was a nurse around. And yet, while never being in the way, the home nurse must be always on the job, always alert to ensure that every possible thing is being done for her patient's comfort and recovery.

Services that can be performed by other members of the family, or that they can be taught to render, should be considered theirs by right. Therein lies their greatest comfort. This is especially true at the last, when the patient can-

not recover, and when even the highest skill is of no avail.

This faculty of self-effacement and of using others' anxious hands in the care of her patient can neither be taught nor acquired in the hospital. In the home, and only in the home, it can be, and the question is,—when?

The foundation principle of a nurse's education and training is that, before she is given any particular service, she shall be taught how to perform it, and so far as possible the reasons for doing it in that way. And her practice is then to be supervised until her work can be depended upon. The same principle should be followed in training a nurse for home nursing. This training can best be given during, not after, her pupilage, when she is teachable, and when her practice can be supervised by her teachers.

This method of preparing student nurses for home nursing has been employed in the Waltham School now for more than thirty-seven years, but it was not invented here. Sixteen years earlier in Lausanne, the School of La Source was founded upon the same principle which is still maintained there. In 1895 our Training School had the benefit of Florence Nightingale's criticism and advice. Her subsequent letter to our nurses in its frame hangs there on the wall. She deplored, even then, the prevailing trend towards the over-hospitalization of nursing to the neglect of home nursing. And she strongly advised us to take for our model the Metropolitan and National Nursing School. The special characteristic of that school, which was chosen as the model for the training of the Queen's Jubilee Nurses, was in the preliminary training of its pupils in home nursing before they were sent to the hospitals for further training. Only such as made good in this preliminary course were retained. After one year in the hospitals they came back to the school for further training in home nursing.

For now a full half-century I have been especially interested in nursing; I still consider it the most important adjunct to my own profession. As a boy I sometimes served as the night watcher of my sick school fellows. I knew Dr. Susan Dimmock, and some of her trials in establishing the first training school in this country. I have studied many of the famous schools here and abroad, and without further apology I offer these as my

CONCLUSIONS.

1. The greatest need of nursing service is now, always has been, and always will be, in the home of the patient.
2. For home nursing, special training is necessary.
3. This special training can be given only in the home.
4. And it can best be given during the nurse's pupilage.
5. It is unfair, both to the public and to the

pupil nurses, for a training school not to include this special training in its curriculum.

AN INVESTIGATION OF THE RELIABILITY OF LABORATORY TESTS AND A DISCUSSION OF TECHNIQUE OF LABORATORIES IN AND NEAR BOSTON.

(Continued from page 479.)

By FRANCIS H. SLACK, M.D., BROOKLINE, MASS.

*Director, Sias Laboratories, Brookline, Mass.,
Instructor in Public Health Laboratory Methods,
Massachusetts Institute of Technology.*

PART 3.

MILK COUNTS.

A COMPARISON OF REPORTS FROM SEVERAL LABORATORIES ON IDENTICAL SPECIMENS.

The bacterial examination of milk has become one of the most important of health laboratory tests. However experts may disagree as to the healthfulness or harmfulness of bacteria in milk, there remain certain important facts which cannot be denied. All other circumstances being equal, milk produced under sanitary conditions contains fewer bacteria than that produced under unsanitary conditions. Milk kept cold contains fewer bacteria than milk not kept cold, and fresh milk contains fewer bacteria than stale milk.

The milk bacterial count, then, is an index of the cleanliness of production, the proper cooling of the product and of its freshness, and a high count indicates a failure in one or all three of these conditions.

Considerable criticism has been brought against the bacterial count of milk because of the varying results obtained when split specimens have been submitted to different laboratories, and it is well known that variations in the media used and in the technique will produce wide divergence in the results.

The object of this series of tests was, first, to learn the technique in use in the various laboratories in this vicinity and to compare the results obtained, then, if possible, to adopt uniform technique and again compare results.

Twelve laboratories agreed to coöperate in milk counts, but because of the distance of some of these from Boston the work was carried on for the most part by but nine.

The twelve laboratories are as follows: Boston Health Department, Brookline Health Department, Brockton Health Department, Somerville Health Department, Wellesley Health Department, Alden Brothers, Boston Biochemical Laboratory, C. Brigham Company, Harvard Medical School Bacteriological Laboratory, H. P. Hood & Company and D. Whiting Company.

Questions concerning the technique in use in these laboratories were answered as shown in the following table:

TECHNIQUE IN USE FOR BACTERIAL EXAMINATION OF MILK SAMPLES.

Laboratory	Microscopic estimate of bacteria	Method	Percent of plating saved	Percent of agar used for plates	Reaction of media	Meat Juice or Beef Extr
A	at times, not often	Slack	0	1-1/2 %	+5 Fuller's scale	Beef Extr
B	Yes	"	0	"	+5 to +1.	Meat Juice
C	"	"	Raw Milk 75%	1%	+1.5	"
D	"	Slack Breed	20-25%	"	+1.	"
E	"	Slack	0	"	-	Beef Extr or Dehydrated
F	"	Slack Breed	90%	"	+ 1.5	Dehydrated
G	No	-	-	1.2 to 1.5%	+5 to +1.	Beef Extr.
H	Yes	Slack	0	1.2%	+1.4 or +1.5	Meat juice
I	No	-	-	1%	+1.5	"
J.	Yes	Slack	0	"	+1.5	"
K	"	"	33%	"	+1.5	"
L	No	-	-	1-1/2%	+1. to +1.5	Beef Extr

The principal point of difference in the technique is in the composition and reaction of the media used.

For the first and second series of tests six specimens each were submitted, care being taken to keep them well iced and to deliver to the laboratories as quickly as possible. The results are shown in Tables I. and II.

Discussion of Milk Tests.—Tables 1 and 2.—Table No. 1 shows what discordant results may be expected when counts are made with varying media and technique. Laboratory D reported such consistently abnormal low counts that inquiry was made into the method of media making, and it was discovered that on account of an error in titration calculation, which evidently had been followed for years, this laboratory was working with an alkaline medium.

Other counts are so far wrong as to indicate serious technical error. For instance, Laboratory F's report on Samples 1 and 2, or Laboratory I on Sample 6.

Wide as the variations are, however, if we consider the results only in relation to the Boston Health Department standard of 500,000 to a c.c., it will be found that out of fifty-four reports but seven are in error, and three of these are from Laboratory D.

Table No. 2 shows the results of another series of tests. In this series there is a closer approxi-

mation of similar conditions since several laboratories obtained media from the Boston Health Department Laboratory.

Laboratory F again reports counts on two samples, 5 and 6, which are difficult to explain, except by errors in technique. Laboratory D shows a similar report on Sample 2, and Laboratory A on Sample 4.

Judging the fifty-four reports from the 500,000 per c.c. standpoint, but two errors are shown: Sample 4 by Laboratory A, and Sample 5 by Laboratory F.

Technique for Milk Counts.—At a conference with seven of the cooperating laboratories represented it was unanimously agreed that a more uniform technique should be established and it was advised that laboratories of this vicinity use for the present as a medium for milk counts a meat-juice medium rather than one made with beef extract or other substitute; that this medium contain 1.2 per cent. agar, and, until such time as the laboratories shall become familiar with the hydrogen-ion titration of medium and shall agree upon the optimum reaction, the reaction shall be established by titration, using phenolphthalein as an indicator, and shall be +1.5 Fuller's scale.

Plates shall be incubated forty-eight hours at 37° C. in an incubator containing water.

Earthenware tops to Petri dishes may be

TECHNIQUE IN USE FOR BACTERIAL EXAMINATION OF MILK SAMPLES

Laboratory	Dilutions plated	Temperature of Incubation	Length of Incubation	Use of magnifying glass	*see foot- note
A	1-100 1-1,000 1-10,000 1-1,000,000	37-1/2°	48 hours	yes, 4in	yes
B	1-100 1-10,000	"	24 & 48 hrs	yes, 2-1/2	"
C	1-100 1-10,000 1-1,000,000	"	48 hours	yes	"
D	1-50 1-2,500	"	"	"	"
E	1-100 1-10,000		24 & 48 hrs	"	I think so
F	1-100 1-1,000 1-10,000	37-1/2°	48 hours	"	yes
G	1-100 1-10,000	"	"	"	not im- portant if Tech- nique is uniform
H	1-100 1-1,000 1-10,000 1-1,000,000	"	"	sometimes	Does not care to answer
I	1-100 1-10,000	37°	"	yes	yes
J	1-10,000 1-1,000,000	37-1/2°	"	"	"
K	1-100 1-1,000 1-10,000	"	"	"	yes if un- iformity can also be had
L.	1-100	"	"	"	yes

* In agreeing upon a technique to be accepted by all the laboratories in this vicinity are you in favor of the technique which will give, as nearly as possible, the actual number of bacteria present?

Milk Counts

Table No. 1

Lab.	Dil.	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
A	Est	Ccc. Org.	2300000	Ccc. Org.	Ccc. Org.	Millions	Millions
	1-100	3300	336000	8200	spreader	too num.	too num.
	1-10000	0	260000	30000	10000	1940000	1340000
	1-10000	10000	350000	80000	spreader	1389000	1500000
B	1-100	2400	Uncount.	90000	40000	Uncount.	
	1-10000	0	1140000	155000	450000	"	7000000
C	Est.	30000	1000000	200000	60000	5000000	2000000
	Report	15000	2150000	180000	45000	9250000	4270000
D	Est.	5000	5000	5000	5000	15000	15000
	1-100	0	16000	10000	10200	80000	130000
	1-10000	0	20000	0	10000	90000	120000
E	Est	O.K.	C.K.	Pus	C.K.	C.K.	L.G.I.
	1-100 1-10000	3500	2900000	120000	26000	1800000	1100000
F	Report	1600000	250000	50000	40000	2500000	1500000
G	Est	Few	Many	Few	Few	Many	Many
	Report	5200	2330000	62000	24000	18000000	10800000
H	Est	Few	Many +	Mod.	Mod.	Many+++	Many+
	1-1000	5000	Strep. pres.	spreader	12000	++++	spreader
	1-10000	20000	1570000	10000	40000	Est 4000000	1860000
I	Report	20000	680000	10000	30000	Unsatisfactory	80000

Milk Counts

Table No. 2

Lab.	Dil	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
A	Est. 1-100 1-10000	Very few 28000 30000	Very Few spreaders 40000	Over a Million Uncount. 3100000	Over a Million 154000' Spr 84000	Medium Clean 70000Spr 220000	Very Few 1500 2000
B	Est Report	No.bact. 4000	No bact. 70000	Many bact 2000000	Many bact 1600000	Few bact 70000	no bact. 4000
C	Est 1-100 1-2000 1-2000 1-10000 1-10000 Report	50000 18200 34000 30000 18200	90000 48000 60000 68000 48000	7000000 Innumer. 9000000 9600000 9300000	4000000 Innumer. 2500000 2340000 2420000	200000 spreaders 250000 258000 254000	20000 6000 4000 6000 5000
D	Est. 1-100 1-10000	30000 40300 60000	5000 2100 0	2500000 Uncount. 2000000	1500000 700000 800000	230000 spreaders 410000	0 3600 10000
E	Est 1-100 1-100 1-10000 Report	O.K. 53200 36400 45000	O.K. 230000 230000	L.I. 2500000 2500000	O.K. 9500000 9500000	O.K. 310000 310000	O.K. 3500 3300 3400
F	Report	40000	250000	15500000	9600000	900000	100000
G	Est Report	Few 20000	Numerous 68000	Uncount 870000	Many 4700000	Numerous 110000	Some Clumped 3600
H	Est 1-100 1-10000	Few 21000 40000	Few 12000 30000	Many+ +++ 2790000	Many- ++ 600000	Mod 37000 60000	Few 5100 10000
I	1-100 1-10000	32000 30000	121000 110000	Uncount 5850000	Uncount 6800000	78200 310000	4800 20000

Milk Counts

Table No. 3

Lab.	Dil.	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
A.	1-100 1-10,000	29,500 120,000	1,300 0	2,600 0	Over 2½ Mill. "	46,800 490,000	3,400 90,000
B.	Est. Report	Few 250,000	0 2,550	Few 21,100	Many Over 2½ Mill.	Few 110,000	Few 23,000
C.	Est. 1-100 1-100 1-10,000 1-10,000 Report	150,000 110,000 100,000 100,000 120,000 110,000	10,000 1,400 1,600 0 0 1,500	20,000 2,000 1,600 0 0 1,800	Over 2 Mill. Innum. Innum. 2,800,000 2,700,000 Over 2½ Mill.	60,000 37,000 36,400 40,000 30,000 36,700	100,000 25,700 26,500 20,000 50,000 26,100
D.	Est. 1-100 1-10,000	110,000 38,000 140,000	10,000 8,000 10,000	30,000 11,000 50,000	Over 2½ Mill. " "	30,000 33,000 50,000	20,000 19,000 20,000
E.	Report	205,000	285,000	5,500	"	45,000	50,000
F.	1-100 1-10,000	120,000 250,000	5,000 10,000	10,000 20,000	" "	100,000 150,000	50,000 70,000
G.	1st Dil. 2nd Dil.	70,000 60,000	3,500 10,000	40,000 30,000	" "	95,500 90,000	67,000 60,000
H.	Est. 1-100 1-10,000	Few 130,000 130,000	Few 2,600 2,300 0 0	Few 6,100 10,000	Many +++ ++++ Over 2½ Mill.	Few + 34,600 60,000	Few 65,000 60,000
I. No report received from this laboratory.							
J.	Report	180,000	2,700	5,800	Over 2½ Mill.	180,000	23,000

used in preference to glass tops, in order to control spreaders as far as possible.

Dilution water bottles must be filled sufficiently to overcome the loss by evaporation during sterilizing.

It was also agreed that as soon as time had been allowed for the various laboratories to conform to these requirements another series of tests would be run, each laboratory to report on but two dilutions, 1-100 and 1-10,000, all 1-10,000 plates containing over 250 colonies to be reported "over 2,500,000."

The results of this third series of tests appear in Table No. 3.

While some returns in this report indicate technical errors (Laboratory E report on Specimen 2 and Laboratory A on Specimen 5—1-10,000 dil.), the returns as a whole are very uniform and show what can be done when like technique and media are used.

Considered from the standard of 500,000 to a e.c., there are no errors in this report, but every worker agrees on every sample.

Some such uniform methods should be universally adopted, methods which, as nearly as possible, will give the actual number of bacteria present per cubic centimeter in the sample tested.

(To be continued.)

Medical Progress.

REPORT ON OBSTETRICS.

By ROBERT L. DeNORMANDIE, M.D., BOSTON.

ABDOMINAL PREGNANCY FOLLOWING HYSTERECTOMY.

McMILLAN and Dunn¹ report a case of abdominal pregnancy following a hysterectomy. In 1918 McMillan did a hysterectomy on the patient. In the following year she presented herself with an abdominal tumor, which they determined to operate upon.

Upon opening the peritoneum a thin amniotic sac filled with fluid presented. They then opened the amniotic sac and removed an eight and a half pound baby. The baby was dead and macerated. The placenta was slowly and carefully separated from the left flank under the spleen, practically incarcerated by the greater omentum. Considerable bleeding followed, but this was controlled by hot packs, and a stab drain opening over the left ilium was made. The patient went off the table in excellent condition. She made an excellent recovery in three weeks.

A year later she presented herself and she was found again to be pregnant. When she was about four to five months pregnant she had a sudden sharp pain in her left side and was found pulseless, very white, tossing in bed, knees

drawn up, abdomen distended. The patient was taken at once to the hospital and immediately the abdomen was opened. Two pints of clear blood were obtained in a sterile basin and this was given back to the patient intravenously with a 2½% solution of sodium citrate. Examination of the peritoneal cavity showed a mass which presented the appearance of a normal uterus on the right side, with a short distal end of a right tube and about half of a normal appearing ovary. At the left side of this mass was the protruding amniotic sac with a bulging mass of bleeding placental tissue which had a strong attachment to the sigmoid flexure. The amniotic sac was ruptured and a boy baby weighing about four pounds was removed. The operator sutured all bleeding points and closed the artificial half uterus. The patient died very shortly afterwards.

In the discussion of this case, which was presented before the Chicago Gynecological Society it was shown that a complete hysterectomy had not been done, as was thought at the first operation.

OBSTETRICAL PARALYSIS OF THE PERONEAL NERVE.

Whitman² reports a case of paralysis of the peroneal nerve from pressure upon the main trunk of the sciatic nerve in its intrapelvic portion. He says it occurs during prolonged or difficult labor, either from direct pressure of a large head in a small pelvis or from trauma by application of forceps. In looking over the literature on the subject, Whitman finds very little about it.

He reports the following case: The patient, aged 43, complained chiefly of paralysis of the left foot. She had been married seventeen years and had seven children alive and well, and two stillbirths. The present illness dates from eleven weeks ago. Labor began on a Friday night and continued until Sunday morning, when at ten o'clock forceps were applied and child delivered with considerable difficulty, weighing ten and a half pounds. Patient at once complained after delivery of great pain in both legs, and inability to move the left foot. Pain gradually wore off, and on the eighth day postpartum she attempted to get up, but was unable to walk because of the foot giving way under her. Since then she has been doing her work, supporting herself by clinging to the furniture. About one month ago power began to return to the flexors of the toes and the calf muscles, which have steadily been growing stronger. No disturbance of sensation.

Physical examination showed on the left side there is a drop foot, resulting from complete paralysis of the extensors of the toes, the tibialis anticus and posticus and the peronei. The flexors of the toes and the calf muscles are apparently normal. No disturbance of pain or temperature sensations, superficial or deep. Mo-

tion of both hips is free and painless. No sign of injury to the sacro-iliac joints or to the pelvis.

Whitman says that the diagnosis lay between two possibilities. Injury to the main trunk of the sciatic nerve where it crossed the pelvic brim, or injury to the peroneal nerve where it winds about the head of the fibula, from compression of the strap in the leg-holder. The second injury is much the more common, but in this case Whitman thinks that it was due to the first cause, because the tibialis posticus was paralyzed.

The patient was given a brace, and with the help of baking and massage and passive motion improvement in the gait was steadily seen, but no muscular improvement whatever was noticed.

Whitman states that the prognosis as to complete recovery in such cases should be extremely guarded, and he suggests that immediate orthopedic and neurological examination should be made, and suggests that in these cases proper apparatus should be immediately applied to prevent deformity.

The article closes with a list of references on the subject.

UTERO-PLACENTAL APOPLEXY IN ACCIDENTAL HEMORRHAGE.

In a most interesting paper Willson³ goes over the history of accidental hemorrhage. He reports in his article a case which he had in his own practice and then in detail analyzes the clinical and pathological data of sixty-eight cases which he finds in the literature.

The case he reports is a typical one of accidental hemorrhage, the classical symptoms were all present. The diagnosis apparently was very easily made, and Willson performed a Caesarean section. On opening the abdomen a considerable quantity of blood-stained serum was found in the peritoneal cavity. The uterus showed a mottled ecchymotic look, the colors ranging from that of a normal uterus through blue almost to black. The discoloration was greater in the region of the left cornua. Both the anterior and posterior walls were involved. In addition to the discoloration, a peculiar fissured appearance was noted. The fissures seemed to run in the main parallel to the long axis of the uterus. The peritoneum was not torn through. The uterus contained over a quart of fluid and clotted blood. The fetus, which was dead, was removed. The uterus at first failed to contract and then acted better. It was finally closed by interrupted sutures. The patient went back to bed in poor shape and died three hours after the operation.

An autopsy was obtained and microscopic findings are of interest. Central necrosis of the lobules of the liver was present, showing especially a slight biliary pigmentation and slight fatty degeneration. The kidneys showed an acute parenchymatous degeneration of a marked degree, involving especially the convoluted tubules. The uterine musculature appeared normal

with the exception of marked hemorrhagic extravasation between the bundles of muscle fibers. The placenta was apparently normal with the exception of a slight hyaline appearance of the stroma of the villi.

Willson analyzes in detail the data he has found in the sixty-eight cases, and a short summary of his findings follows. The period of gestation was mentioned in only fifty-eight cases. As far as Willson could determine, five cases occurred in the seventh month, ten in the eighth month, twenty-one in the ninth month, and twenty-two cases at term. In regard to the symptoms of toxemia, albumin was present in large amounts in forty-four cases. The blood pressure was only mentioned in nine cases, and in these nine the systolic pressure varied from 100 to 280. In seven cases there were no symptoms of toxemia, while there were definite symptoms of toxemia noted in forty-eight cases. Of the sixty-seven cases where the character of the bleeding could be determined, forty-six showed frank or combined type of bleeding. In thirty-six cases the placenta was separated completely, in twelve it was only partially separated, and in the others it was not noted.

Patients were delivered by the Porro operation twenty-one times, twenty-one times by conservative Caesarean section. Abdominal hysterectomy without opening of the uterus four times, vaginal hysterectomy twice, abdominal hysterectomy for rupture of the uterus once, extraction of the fetus by vagina, spontaneous delivery four times, abdominal hysterectomy to control postpartum hemorrhage was done three times, and three patients died undelivered. There were thirty-eight maternal deaths, and sixty-two fetal deaths. Of the children that survived, all were delivered by Caesarean section, there being no case in which the fetus survived through delivery by the vagina.

Willson goes into detailed analysis and study of the pathological data. In speaking of the myometrium, he calls attention to the constant finding of a hemorrhagic process present under the peritoneum. The observations regarding the condition of the muscle fibers themselves are rather contradictory. The decidua show changes which are always more marked in the decidua basalis than in the parietal decidua. The blood-vessels showed no uniformity, except the fact that they were markedly congested. In twenty-two cases out of thirty-one, it was noted that there was marked intraperitoneal effusion. The broad ligaments were involved in twenty-six, the tubes in eleven, and the ovaries in four cases. The placenta has not shown any marked pathological changes.

Willson reviews the theories regarding the causation of accidental hemorrhage, and puts forward himself the hypothesis that there is a hemorrhagic toxin, liberated by the placenta, which produces its maximum effect locally at the site of its inoculation, so to speak, and sec-

ondarily produces manifestations of a general toxemia.

Willson closes his article with a long bibliography on the subject brought up to date.

TREATMENT OF PREGNANCY COMPLICATED BY VALVULAR HEART DISEASE.

Heaney⁴ writes of the method of managing pregnancy complicated by valvular heart disease, from an obstetrician's point of view, and takes a very conservative attitude in regard to the way they should be delivered, bringing up the point that not only must the patient be delivered in the safest way, but that the post-delivery convalescence is as important as the delivery itself. He warns of the results that come from doing Caesarean section on all heart cases, and comes to the conclusion that physicians are not justified in refusing pregnancy to women with accidental or symptomless heart murmurs, and gives a word of warning that women who have had recent broken compensation or broken compensation in a preceding pregnancy enter pregnancy greatly jeopardized and that Caesarean section is not a ready and complete solution of the delivery of a woman with a broken compensation, adding that abortion for heart disease should have sterilization added to it when this can be done with but little additional risk.

THE TWO-FLAP LOW INCISION CAESAREAN SECTION.

Beek⁵ brings forward a low incision for Caesarean section which he thinks is applicable after an efficient test of labor. He states that peritonitis was the cause of over ten per cent. of deaths of patients operated upon at the Long Island College Hospital after a test of labor, and in order to avoid this high mortality he has developed his so-called "two-flap incision." The uterus is exposed through a mid-line incision below the umbilicus. The peritoneum is incised transversely about two centimeters above the bladder. A lower flap is obtained by stripping the bladder off from the anterior surface of the uterus. The upper flap is made by gently passing a pair of scissors under the peritoneum. The uterus is incised in the mid-line after exposing the denuded area by retracting the two flaps. The extraction of the child is accomplished by the hand with downward pressure on the fundus. If necessary, forceps may be used to facilitate the delivery. Before separating and removing the placenta, a catgut suture is passed through the lower angle of the uterine wound, in order to prevent the uterus from sinking into the pelvis. A similar suture is placed in the upper angle of the incision. Traction on these two sutures brings the entire wound into view and protects the peritoneal cavity while the placenta and membranes are being removed. In certain cases the placenta and membranes may be forced down through the cervix into the vagina. The incision in the uterus is closed by two series of interrupted sutures. The upper peri-

toneal flap is brought down over the superior portion of the closed uterine incision, and secured by several interrupted sutures. The remainder of the denuded surface is covered by bringing up the lower flap above the original incision. In this manner the peritoneal flaps thoroughly seal the wound in the uterus.

Beek shows the charts of the twenty-nine cases operated upon according to this technique. Fourteen cases, Beek states from the chart, were probably not infected at the time of operation. Other charts show cases which had been in labor from ten to twenty-four hours or more, some with membranes ruptured and a number with vaginal examinations made. All the patients recovered, and in only eight did infection appear.

Beek's conclusions are that this technique will eliminate the consideration of elective Caesarean section in border-line cases of dystocia, and by permitting the use of an efficient test of labor, most of these patients will be delivered through the natural passages. The few that fail may, with some slight added risk, be delivered by the use of the technique he describes. He recalls that potentially infected cases frequently are not infected, and that whenever our opinion in this respect is erroneous, this technique does not sacrifice the non-infected uterus, but preserves the functions of menstruation and reproduction.

He finally concludes that his mortality from this operation will be less than ten per cent., and claims that the two-flap low incision Caesarean section should be given preference.

ACTION OF THE ECBOLICS IN THE FIRST STAGE OF LABOR.

Rucker⁶ has utilized the Voorhees bag placed within the uterus in order to study the variations in pressure that take place within the uterus in the first stage of labor, as the result of giving the drugs commonly used at this time. He records his observations graphically, but he does not go into the details of the technique used. His article contains several graphic records of the results following the use of various drugs.

He concludes that by this means there is presented an excellent opportunity to observe the action upon the uterus of the drugs commonly used in obstetrics. From his limited observations it would appear that hyosine has a moderate but rather constant ecbolic action in the first stage of labor. The action of quinine is more variable. His observations upon the action of strychnine, castor oil, ergotol and the fluid extract of ergot are too limited to warrant even a tentative conclusion.

In the cases in which pituitrin was used even in minute doses, there was a continued contraction of the uterus that varied from nine to thirty-five minutes in duration, and Rucker feels that this is probably the explanation of the many disasters that have followed its use.

PITUITARY EXTRACT AT THE BEGINNING OF THE THIRD STAGE OF LABOR.

Brodhead and Langrock⁷ gave to one hundred consecutive patients, immediately after the birth of the child, one c.c. of infundin, hypodermically, in order to ascertain its effect upon the delivery of the placenta. In 19 cases the placenta was expelled spontaneously. The minimum time in one case was four minutes, and the maximum time was eighteen minutes. In 78 cases Crede's method of expression was used. In three cases the placentae were manually extracted. In 26 cases the amount of blood lost did not exceed 30 c.c. The maximum lost in a primipara was 525 c.c., in a multipara, 1,230 c.c. The average amount of blood lost in all the cases was 135 c.c. In 77 cases the blood lost after the third stage was completed did not exceed 30 c.c. for a period of one hour following the delivery of the placenta. The maximum amount of blood lost in primiparae was 750 c.c., and in multiparae 850 c.c.

The authors feel that in the vast majority of cases the method as outlined is safe and valuable in minimizing the loss of blood. They also feel that the uterus must be observed just as carefully as when pituitrin is not given. The only drawback to the method is the possibility of irregular or hour-glass contraction of the uterus. The authors recognize the fact, however, that this complication occurs independently of the use of pituitrin, and they say that further investigation will be necessary to show whether this complication is directly attributable to pituitrin or not.

LOW CERVICAL CAESAREAN SECTION.

De Lee and Connell⁸ report 145 cases of low cervical Caesarean section with much the same technique as Beck describes in his paper. These authors state that this technique was used several years before Beck published his article. The main difference between the two techniques is that De Lee and Connell use a special knife to make the uterine incision and that they "reunite the fascia over the lower uterine segment with a special row of catgut sutures." They further use a vacuum pump in order to suck out the blood and liquor amnii from the operator's field.

From this paper one gathers that they would perform this operation in the great majority of cases where a Caesarean is indicated, reserving the old classical Caesarean section for special indications. They give to this operation the name laparotrachelotomy and claim the following advantages for it.

1. The cervix stands infection better than the fundus.
2. The lower portion of the abdomen is more resistant to infection.
3. The cervical wound is at rest and can heal in peace.

4. The healing of the cervix is better than that of the fundus.

5. There is relatively little danger of leakage of the lochia.

6. The incidence of adhesion is reduced almost to zero.

7. The possibility of rupture of the scar in subsequent pregnancy is reduced to the minimum.

8. By this technique the patient is given a real test of labor.

9. Abdominal hernia has not occurred.

THE END-RESULTS OF ABDOMINAL CAESAREAN SECTION.

King⁹ analyzes 117 Caesarean sections done at the Charity Hospital in New Orleans by twenty-five operators, and 33 private cases done by five operators. In these cases there occurred six ruptured scars. Two of these patients died, the others recovered, one having to have a supravaginal hysterectomy. King's article contains some interesting tables which are too complicated to abstract.

King comes to the conclusion that we should restrict rather than broaden our indications for Caesarean Section.

HEART IN PREGNANCY.

Smith¹⁰ reports a series of clinical observations which were supplemented by electrocardiographic studies, in order to determine what changes, if any, were induced in the heart by pregnancy. His article contains several electrocardiograms illustrating his investigations. His conclusions are as follows:

1. Pregnancy in itself does not cause cardiac enlargement.

2. Such evidences of cardiac enlargement as may appear under certain circumstances disappear under other circumstances.

3. Cardiac enlargement, in the latter half of pregnancy, can be simulated by the upward pressure of the gravid uterus.

4. There are no heart affections which are characteristic of, or incident to, pregnancy.

5. While pregnancy throws a load on the heart it is fully capable of adapting itself to this demand.

6. A definite history of previous infections requires that the expectant mother be closely observed for symptoms of masked heart disease.

7. Focal infections may cause symptoms of heart embarrassment in pregnant patients which might erroneously be attributed to pregnancy.

8. Definite cardiac indications for the interruption of pregnancy are rare. Even frankly diseased hearts will exhibit a surprising adaptability to the physiologic demands of pregnancy.

INTRAVENOUS INJECTIONS OF GLUCOSE IN TOXEMIA OF PREGNANCY.

Titus and Givens,¹¹ following their success in treating the toxemias of early pregnancy by the

intravenous injections of glucose, decided to try this treatment in cases of eclampsia.

The solution used contained usually 75 gm. of glucose dissolved in 500 c.c. of distilled water, and sterilized at 15 pounds pressure for thirty minutes. The rate the solution was given was controlled to a certain extent; the entire volume was introduced in thirty minutes, but the authors state that there was no indication of harm to a patient if a more rapid flow occurred. They prefer to give single doses, repeated as required, rather than to attempt a continuous flow for any considerable period of time.

Recognizing that the liver is the carbohydrate storage organ of the body and that, in fatal toxemias of pregnancy, it undergoes degeneration and necrosis, the authors endeavored to devise a test which would indicate the degree or extent of liver impairment. The test is as follows: A specimen of blood is taken for blood sugar determination and then a given amount of glucose is injected intravenously, taking a definite length of time for the injection, after which another specimen is taken for blood sugar. Blood sugars are then done at stated intervals and from them a glycemia curve is plotted.

The writers conclude:

1. That the usefulness of glucose and other carbohydrates seems to be based on the fact that in toxemia of pregnancy there is a carbohydrate deficiency in the maternal organism.

2. That disturbances in kidney function are probably secondary to the hepatic changes.

3. That as a result of intravenous administration of glucose, in cases that this was used, there was, in individual patients, immediate clinical improvement and a general lowering of the mortality rate.

4. That the usual autopsy findings in the liver of patients dying from any toxemia of pregnancy are distinctly altered if this treatment is used. Those portions of the liver lobules, which are ordinarily necrotic, are restored to a marked degree and, in most cases, a diagnosis of eclampsia could not be made from an examination of the liver sections alone.

5. That the regeneration of the liver cells after injection of glucose, at least partially, restores the normal functions of the liver, especially in respect to its action as the detoxicating organ of the body.

6. That from these investigations it is thought that the rate of absorption and storage of the injected sugar is an index of the condition of the liver.

STUDY OF THE SCAR IN REPEATED CAESAREAN SECTIONS.

Gamble¹² analyzes the cases of repeated Caesarean sections which have been done at the Johns Hopkins Hospital, with special reference to the healing of the scar, and the occurrence of rupture through it.

Gamble studies the cases under the following

headings: infection, suture technique, suture material, situation of the incision, incision into the placenta over the old scar. He gives most interesting detailed descriptions of twenty uteri that were removed, and his article is illustrated by photographs of some of the specimens obtained. Gamble states that at Johns Hopkins, patients are sterilized after the third Caesarean section, for it is felt that when a patient has been subjected to the risk of three major operations she should be relieved of the added danger of a ruptured scar which must inevitably become increased after each subsequent operation.

Gamble's conclusions are: A weak Caesarean scar may be due to a combination of factors, the most important of which is infection. A febrile puerperium does not give an absolute assurance of perfect wound healing. The uterine wound should not be closed, if possible, until firm contraction of the musculature has occurred. Usually fetal elements do not invade the uterine scar. The dictum "Once a Caesarean, always a Caesarean" can not be accepted without considerable observation. A patient, who has once been subjected to a Caesarean section, should enter the hospital several weeks prior to the expected date of confinement so that she may have the benefit of immediate operation should rupture occur.

TUBERCULOSIS IN A STILLBORN FETUS.

Whitman and Greene¹³ report of case ofiliary tuberculosis in a stillborn fetus. Autopsy showed tubercular lesions in the lungs, with many calcareous nodules. Microscopic lesions were also found in the adrenals, kidneys, ovary, and brain. The placenta also showed numerous caseous nodules. The writers were able to find 113 authentic cases of prenatal tuberculosis, and their conclusions are:

1. Prenatal tuberculosis has ceased to be a mere curiosity of the laboratory, and has become a pressing problem of the sanitarian.

2. The facts at hand are significant enough to command the active employment of every agency by which further facts may be elicited.

3. To the extent that the spread of the disease is due to prenatal, rather than postnatal, infection, present methods of control must be revised and amended, even at the expense of those sentiments of compassion and tolerant forbearance by which our present efforts are so notably handicapped.

CHEMICAL OBSERVATIONS ON THE TOXAEMIAS OF PREGNANCY.

In a most interesting, though highly technical paper, de Wesselow¹⁴ reports his studies of an attempt to estimate the value of chemical methods of investigation in the toxemias of pregnancy. Because the brunt of the damage, in these conditions, falls on the liver and kidneys, de Wesselow has tried by chemical examina-

ation of the functions of these organs during life to determine the extent and progress of the lesions. He reviews the work that has been done on estimating renal efficiency, which he feels is satisfactory. In dealing with the hepatic function he says that at present there is no simple and accurate method that is available. In his studies he made use of the following methods: In the blood, he studied the urea, the non-protein nitrogen, the fibrinogen and the plasma lipase; in the urine, the total nitrogen urea and the ammonia. The blood pressure was taken and the urea test, as shown by the concentration, estimated for three consecutive hours after a dose of 15 grammes. He discusses fully his findings of normal pregnancy, mild toxæmias, and eclampsies, not only in the light of his own studies but in conjunction with other investigators of the same subjects. His findings are all carefully tabulated.

He concludes that there appears to be no definite evidence that we can detect the presence of a liver lesion in these cases of toxæmia. In the limited number of cases studied there was no evidence obtained, but the methods employed, of a differentiation into groups, or were there any definite differences detected between those complicated by convulsions and those in which no convulsions occurred.

There was no evidence of the existence of an hepatic as distinct from a nephritic toxæmia of pregnancy. He further concludes that a definitely raised urea content of the blood, that is to say, under the conditions obtaining in pregnancy, a blood urea above 40 mgrms. per 100 c.c. is proof that the kidney is severely damaged, and is an indication for induction of labor. If the blood urea is not raised, the urea concentration test gives valuable evidence of the condition of the renal function, and when the figure obtained is below 2 per cent., termination of the pregnancy should be considered. In cases in which a low diastatic is present, chronic disease and a less complete recovery are suggested. de Wesselow says that by estimations of the renal efficiency, in the absence of any satisfactory hepatic function tests, by the methods suggested we may be able to arrive at definite criteria for interrupting the pregnancy and thereby favorably influence both the immediate and ultimate results of the toxæmias of pregnancy.

PREGNANCY AND HEART DISEASE.

Pardee¹⁵ in his studies of the fitness for pregnancy of patients with heart disease, has grouped these patients according to their reaction to exercise. He studies the patient's symptoms, when housecleaning and climbing stairs, to find out how much she is restricted in her activities by the appearance of shortness of breath or palpitation. She then is put through a test exercise which consists of standing with feet separated and swinging a ten-pound dumb-

bell, in both hands, from over her head to as near the floor as she can conveniently reach, repeating the movement about once every two seconds. Pardee says this test can be repeated twenty times without difficulty, but all cases must be carefully watched for any possible distress. By his observations he says a normal pregnant woman can do this test without distress and with only a slight sense of breathlessness. The pulse will quicken to 120 a minute, counting for the first ten seconds only, but at the end of one minute the respiration will be normal and the pulse nearly so. Patients who were not troubled by what they considered unusual dyspnoea or palpitation on exertion before pregnancy, and who did not develop this during the present pregnancy, provided they showed a normal reaction to the test exercise, were placed in Group 1. Those patients who were not bothered by unusual dyspnoea or palpitation before pregnancy, but who had complained of this during a previous or the present pregnancy, and who showed either a normal or moderate reaction to the test exercise were placed in Group 2. If these patients showed a markedly increased reaction they were placed in Group 3.

All patients who had unusual dyspnoea or palpitation on ordinary exertion, before pregnancy, and showed added symptoms during pregnancy, were put into Group 3. These patients showed a moderately increased reaction to the test exercise, but if the reaction was markedly increased they were put in Group 4.

Group 4 consisted of patients who had been troubled by unusual dyspnoea before pregnancy, and whose symptoms had been markedly accentuated during a previous or the present pregnancy, so that the patient had to remain in bed for a time. These patients all showed markedly increased reactions to the test exercise.

Under this grouping Pardee studied thirty-four patients. There were seventeen cases in Groups 1 and 2, and none showed serious signs of cardiac overstrain during labor. Two patients in Group 3 died, but neither was in labor, and the two that died in Group 4 were during or immediately after labor.

Pardee feels that this grouping is very useful in prognosis, and also of great help in the management of those pregnancies which fall into Groups 3 and 4. He feels that women who fall into these two groups should be allowed to undertake pregnancy only when there is some very special reason, or when they are ready to keep themselves under the constant supervision of a physician who is accustomed to handling such cases.

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Book Reviews.

The Practice of Medicine. By A. A. STEVENS, A.M., M.D., 1106 pages. Philadelphia and London: W. B. Saunders Company. 1922.

There already exist many medical textbooks the contents of which are similar and presented in the same standard manner, and this "Practice of Medicine" differs from them in no essential way.

The author has indicated the important issues of the day, and, most desirably, has drawn only conservative conclusions. The work is complete and carefully prepared. The book is up to date, but except for this it serves no purpose not fulfilled by other good textbooks of medicine.

It is unfortunate that the author, with his extensive and serviceable clinical experience, did not avail himself of the opportunity of presenting the subject in a more modern manner, as is to be found in certain articles appearing in the Oxford and Nelson Systems of Medicine.

The few selected references are well chosen, yet, unfortunately, are incompletely given. The book serves a useful purpose in that it adds another good textbook of medicine to the list of those already published.

Submucous Resection of the Nasal Septum. By WILLIAM MEDDAUGH DUNNING, M.D. New York: Surgery Publishing Co.

"This book is primarily a monograph giving in clear and concise detail the individual technique and results of the author. It is a helpful contribution to the subject.

"One could wish that the operative technique had been presented on a broader basis. The briefness of the article hardly warrants its publication in book form as an authority on the subject of 'submucous resection of the nasal septum.'"

Diseases of the Eye. CHARLES H. MAY, New York: William Wood & Co. 440 pages. Price \$3.50.

A new edition of "May" has just been received from the publishers, William Wood & Co.

This book has long occupied a preëminent place as a manual in the field of Ophthalmology. The 10th edition is sure to make its place more secure with the student and the practitioner who desires a handy book on this subject.

The publishers have retained the same excellent form as in other editions.

Diseases of the Eye. GEORGE E. DE SCHWEINITZ. Philadelphia and London: W. B. Saunders Co. 832 pages. Price \$10.

De Schweinitz's new Ninth Edition, "Diseases of the Eye," presents the last word in this field of Ophthalmology. The work has been thoroughly revised and much new material added. The influence of the late war is apparent in many sections and is particularly shown in the department of plastic surgery.

The chapter on Skiascopy has been revised, as have several others. Among numerous new additions might be mentioned a section on Ophthalmoscopy, with Red-free Light, and also Verhoeff's method of Electrolytic Punctures for Detachment of the Retina.

This author's work has always been popular with the oculist and the new edition should enhance its standing.

The volume is published by Saunders and Co., so nothing more need be said concerning the typography.

Current Literature Department.

ABSTRACTORS.

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AN EXPERIMENTAL STUDY OF METHODS FOR BRIDGING NERVE DEFECTS.
WITH A DESCRIPTION OF A NEW METHOD OF AUTOTRANSPLANT (AUTO-AUTOTRANSPLANT).

SACHS, E., and MALONE, J. Y. (*Archives of Surgery*, Sept., 1922).—These authors write as follows:

Three methods of bridging defects in nerves have been studied by a combination of physiologic and histologic methods.

It has been shown that nerve fibers will grow down the trunk of a healthy nerve through a longitudinal incision without impairing its function and part of the fibers connect up with the peripheral end. It is, there-

fore, of distinct advantage to implant the central end of a cut nerve as well as the peripheral end.

On account of the branching of regenerating fibers, enough axons are produced when a nerve is cut longitudinally to fill the sheaths in the implanted nerve, indicating that in a nerve anastomosis, an end-to-side implantation is perfectly satisfactory. This confirms our clinical experience. We have for years practiced this method of anastomosis in faciohypoglossal anastomosis.

The test described by one of us (Malone) for determining that nerve fibers have grown across a point of suture has proved a valuable aid in determining at an early date whether or not a nerve is regenerating.

The study of cross-sections of nerves as well as the results following the method of auto-autotransplant described in this paper throw doubt on, and we believe disprove, the contention that peripheral nerves have an internal topography, as maintained by Stoffel.

Though absolute alcohol may inhibit to some extent the formation of neuromas, it does not absolutely prevent them.

The most important factor in a successful nerve anastomosis is the accurate approximation of the nerve ends so that there is no tissue between them which may interfere with the regeneration of the fibers. Every effort, of course, should always be made to bring them together in their original anatomic relation; but, owing to the presence of internal plexuses in nerves, it is not so essential as has been supposed heretofore. Whenever a nerve regenerates, whorls are formed at the regenerating end, consequently the central end of a fiber does not necessarily connect with its corresponding peripheral end.

The method of auto-autotransplant described in the foregoing pages for bridging defects too long to permit of an end-to-end anastomosis is to be preferred to cable transplants because no normal nerve has to be injured and the operation can be carried on in one field.

The method of choice for bringing large defects, whenever possible, is the double implantation method of anastomosis. Its advantage over the auto-autotransplant lies in the fact that *some* cylinders have only one suture line to grow through, while in the auto-autotransplant they all have to go through two suture lines. [E. H. R.]

AUTOGENOUS VERSUS HETEROGENEOUS BONE PEGS.

TARNOWSKY (*Surg., Gyn. and Obstet.*, Sept., 1922) writes as follows:

The clinical behavior of a beef-bone graft depends entirely on the relative activities of the osteoblasts and osteoclasts:

1. With proliferation of new cells from the living proximal and distal ends of the fractured bone keeping pace with absorption of dead cells from the graft, complete disappearance of the latter coincides with complete union of the fracture or filling in of the defect.

2. With hyperactive new cell formation and sluggish absorption, the graft constitutes a sequestrum which either churminates and remains in a state of quiescence or acts as an irritant foreign body with sinus formation and periodic extrusion of dead bone spicules.

3. With hyperactive bone absorption and sluggish new-bone formation the graft disappears by combined extrusion and absorption before union or filling in of the defect has taken place.

The factors which enable us to attain the ideal, i.e., an even balance of absorption and proliferation, are: First, the thorough trimming off of dead bone proximally and distally with curette and chisel; second, firm approximation of the bone graft to living bone; and third, absolute asepsis.

Finally, it has seemed to us that the term infection, as applied to bone surgery, is too loosely used, and

that in many cases of so-called septic results we are merely dealing with type three, i.e., rapid necrosis of the graft without infection—using the latter term in its perfect sense. In other words, subacute osteomyelitis, with no anti-body reaction on the part of the individual, should not be classed as an infection but as ordinary tissue necrosis. [E. H. R.]

CARBON TETRACHLORIDE IN HELMINTHIASIS.

McVAIL (*Ind. Med. Gaz.*, Aug., 1922) reports his experience with carbon tetrachloride as an anthelmintic. He finds that children stand the drug well, and he has given a child of 12 a drachm on two successive days without ill effect. Seventy minims on two successive days is the largest dose he has given an adult. A dose of 60 minims in an old man was followed by irregular pulse and shivering speech. The drug has marked sporic properties. It does not appear to aggravate albuminuria and may be given in cases of kala-agar complicated with ankylostomiasis during the remissions of temperature, while kala-agar cases stand chenopodium badly.

The writer finds that carbon tetrachloride is of little value against ascariis, trichurias and hymenolepis. Against oxyurias it appears to be almost specific. Very recently reports from South America state that several cases of acute yellow atrophy of the liver have followed the use of this drug.

[L. D. C.]

CANCER IN THE CERVICAL STUMP; METASTASIS IN THE VERMIFORM APPENDIX.

FRANK (*Surg., Gyn. and Obstet.*, Sept., 1922) writes as follows:

The case reported is one of stump cancer, noticed within five months after supravaginal hysterectomy for fibroids of the uterus. It is, therefore, fair to presume that the carcinoma was overlooked at the time of the operation.

Complete hysterectomy for fibroids of the uterus is not recommended as a routine measure, because of its increased mortality over supravaginal amputation.

Increased care in examining the cervix, before all operations for uterine conditions are undertaken, is enjoined, and it is suggested that the patients after operation be warned to note and report bleeding or abnormal discharge.

A metastasis in the non-adherent appendix is reported as a unique site of secondary deposit from cervical cancer. [E. H. R.]

VOMITING AND DISTENTION AFTER LAPAROTOMY LESSENED BY THE SUBSTITUTION OF RUBBER ENVELOPE PADS FOR GAUZE.

BISSELL (*Surg., Gyn. and Obstet.*, Sept., 1922), after a study of some 300-odd cases with controls, concludes that nausea, vomiting and distention are markedly lessened by the use of rubber walling-off pads in the place of gauze, principally because of the lessened amount of trauma to the intestines.

[E. H. R.]

BOVINE TUBERCULOSIS IN INDIA.

LISTON and SOPARKAR (*Ind. Med. Gaz.*, June, 1922) report on an investigation into the nature and origin of an outbreak of tuberculosis among animals in the Bombay Zoological Gardens. They find that the disease, which spread to some 30 animals (deer, llamas, antelopes, etc.), was bovine in nature in every case. It probably originated from the llamas which were imported from Germany, one of which died of tuberculosis in the gardens. Tuberculosis among cattle is rare in India. [L. D. C.]

THE FUNCTION OF THE GALL-BLADDER IN BILIARY FLOW.

JACOBSON, C., and GYDESEN, C. (*Archives of Surgery*, Sept., 1922).—These authors write as follows:

Bile as a secretory product of the liver is produced probably through hormone stimulation associated with the production of acid chyme in the stomach. The height of biliary flow is coincident with the passage of the acid chyme into the duodenum.

There is a marked similarity between the curve of bile production and that of pancreatic secretion.

The smaller continuous secretion of the liver is stored in the gall-bladder, which acts as a reservoir, until evacuated by the demands of digestion. The storage capacity of the gall-bladder is augmented by its remarkable concentrating power.

The S-shaped configuration of the neck and ampulla of the gall-bladder prevents overdistention of the gall-bladder. When overdistended it prevents the exit of bile. By altering the peculiar configuration of the portion of the gall-bladder and cystic duct, inflammatory conditions may readily produce a nonfunctioning gall-bladder.

The sphincter of Oddi, a definite muscle entity at the duodenal end of the common duct, sustains an absolute pressure of about 150 mm. of water. The gall-bladder undoubtedly equalizes the great fluctuations in this pressure due to movements of the abdominal muscles and contiguous organs. Cholecystectomy tends to produce a lowered intraductal pressure and a relaxed tone of the sphincter of Oddi. The sphincter is probably under reflex nervous control associated with the passage of acid chyme into the duodenum and with intrinsic movements of the duodenum itself.

Magnesium sulphate does produce a complete, local relaxation of the duodenal wall and the papillary sphincter, with reduction of the intraductal pressure. Relaxation is transient and is usually accompanied by a flow of bile from the orifice.

There was no evidence that concentrated magnesium sulphate produced any contraction of the gall-bladder or any specific change in the gall-bladder pressure. The augmented biliary flow from its application is probably due to the evacuation of the bile from the bile ducts as a result of sphincter relaxation and also to the stimulating effect of the salt upon the liver secretion.

Flow of bile from the gall-bladder has been produced in certain cases by injection of large amounts of 0.1 per cent. hydrochloric acid into the duodenum. This probably is the mechanism of its discharge at the beginning of digestion.

The production of mucus and the concentrating power of the gall-bladder are suggestive of some purposeful differentiation of that structure, although its removal has been, in human beings, without any definite, clinically demonstrable deleterious effects.

[E. H. R.]

LYMPHO-CYSTIC URETHRAL LESION: AN EVIDENCE OF SYSTEMIC TUBERCULOSIS.

PELOUZE, P. S. (*Journal of Urology*, March, 1922), writes:

Of 16 cases presenting these cysts at autopsy, found by Dr. Randall, all but two showed massive active tuberculosis. In these cases the principal lesions were lungs 94%, kidneys 12%, bladder 12%, intestines 37%, pleura 25%, spleen 25%, liver 12%, S 1-3% in whom careful clinical studies were possible showed strong evidences of an active tuberculous lesion. In these the lesions were lungs 82%, kidney 17%, bladder 14%, epididymis 61%, prostate 8%; in 32% there were tubercle bacilli in the urine.

The urethral lesions are important from a diagnostic standpoint alone as they never ulcerate nor extend to the prostate. They remain as long as the causal focus is active and spontaneously disappear, providing the patient's general health improves. Burning

in some portion of the urethra during micturition is the most common subjective symptom.

These occur in women but are easily confused with the mucosal tabs so common at the female vesical neck.

Many patients have symptoms of prostatitis only and are suspected because treatment fails to improve or makes worse the prostatic condition.

The lesions are only occasionally true tuberculous but are apparently due to the action of some tuberculo-toxin. They are never primary urogenital tuberculous.

From the clinical and autopsy data presented it is felt that the association of these lesions with tuberculosis is too frequent to be coincidental and that every patient in whom they exist has a large or small tuberculous focus that is active.

The paper is concluded by brief histories of the seventy-five cases.

[B. D. W.]

PNEUMOPYELOGRAPHY: A PRELIMINARY REPORT ON ITS ADVANTAGES AND TECHNIQUE.

THOMPSON (*Jour. of Urology*, April, 1922) feels that there is less reaction to injection of oxygen than when opaque solutions are used. He gives a case,—pyelograms and postoperative results. The conclusions arrived at are:

I. Pneumopyelography is a simple, though uncommon, procedure and deserves a greater popularity.

II. Its procedure is attended by apparently no reaction and causes the patient less discomfort than the injection of an opaque solution.

III. In certain cases it is a greater aid in roentgenographic diagnosis than the opaque solutions.

[B. D. W.]

DISSOLUTION OF CALCULI IN THE RENAL PELVIS AND URETER.

BRYAN and CALDWELL (*Jour. of Urology*, April, 1922) draw the following conclusions:

I. The means for determining the character of stones can be estimated only by the density of the shadow by x-ray, and by urinalysis, at which time we hope to catch crystals from the stone which may be most misleading.

II. The only stones amenable to dissolution are the phosphatic, which constitute only 9 per cent. of all stones, and the calcium carbonate (very rare), which constitute 4 per cent. of all stones.

III. Stone formation is always attended with the presence of pus. This condition is aggravated by topical applications.

IV. Many stones may be assisted in their expulsion by ureteral dilatation and lubrication.

V. Operation in the upper tract, pyelotomy in the lower tract, by intramuscular gridiron incision, is attended with such happy results that experimentation with solvents would seem impracticable.

VI. The mucosa of the dog, lining the pelvis and the ureter, can stand 0.5 per cent. hydrochloric acid U. S. P.: stronger than this shows a round-cell infiltration and destruction which in course of time is not followed by repair.

[B. D. W.]

SURGICAL INFECTIONS OF THE KIDNEY.

BAKER (*Jour. of Urology*, April, 1922) speaks of the embryology of the portions making up the kidney.

There is difficulty in differentiation because the majority of all kidney infections occur in the female and on the right side. The chief obstacles are:

1. To differentiate it from similar explosions which may occur either in the appendix, gall-bladder, stomach or pancreas.

11. To distinguish it from the more acute pyelitis or pyelonephritis, which may also have a very stormy beginning.

In a series of 75 cases of pyelitis and ureteral stricture, 14 per cent. had been operated upon, during an acute exacerbation, for acute appendicitis. Some of these had operations for chronic appendicitis. All told, 51 per cent. had either been operated upon or had had operation of the abdominal cavity advised as the necessary remedial measure.

Careful study seems necessary of the upper urinary tract before making your abdominal incision.

[B. D. W.]

THE TOXICITY OF POTASSIUM CHLORIDE IN EXPERIMENTAL NEPHRITIS.

UNDERHILL and FERGUSON (*Jour. of Urology*, April, 1922) make the following assertions:

Potassium chloride intravenously administered to rabbits with tartrate nephritis is much more toxic than sodium chloride introduced under similar experimental conditions.

Potassium chloride intravenously injected is no more toxic to rabbits with tartrate nephritis than it is to normal animals.

The induction of a nephritic condition in rabbits by tartrate, therefore, does not render the animal more susceptible to potassium chloride introduced directly into the blood stream.

[B. D. W.]

UNILATERAL FUSED KIDNEYS.

HYMAN (*Jour. of Urology*, April, 1922) declares that this condition is most rare. There is rarely a preoperative diagnosis. One unilateral fused kidney was found at autopsy in over 8000 cases, whereas the horse-shoe kidney is encountered once in 1000 cases. Israel reported two fused and five horse-shoe kidneys in 500 operations.

The two cases reported were diagnosed preoperatively by careful study with opaque catheters in ureters, and pyelograms made. In one a stone in lower portion of fused kidney was removed, with excellent recovery; in the other it was felt that pain was due to pressure and operation would be of no benefit.

[B. D. W.]

SALIGENIN AS A LOCAL ANESTHETIC FOR CYSTOSCOPY IN MEN.

HIRSCHFELDER, WETHALL and THOMAS (*Jour. of Urology*, April, 1922) present these results:

I. In ten cases in which 4 per cent. solutions of saligenin were instilled into the male urethra anesthesia satisfactory for cystoscopy was obtained, as was likewise the case in 20 cases in which 8 per cent. solutions were used.

II. No unpleasant results were experienced in these cases.

III. Saligenin is a local anesthetic of very low toxicity, which can be used satisfactorily for local anesthesia for cystoscopy in the male.

[B. D. W.]

PRESENTATION OF TEST-TUBE HOLDER FOR COLLECTION OF URETERAL SPECIMENS.

LEVY (*Jour. of Urology*, April, 1922) offers the suggestion of using a canvas strap a couple of inches wide, with loops, stretched between the stirrups for holding test-tubes, into which the ureter catheter may be placed while collecting specimens.

[B. D. W.]

A NEW METHOD OF PERINEAL PROSTATECTOMY WHICH INSURES MORE PERFECT FUNCTIONAL RESULTS.

GERAGITY (*Jour. of Urology*, May, 1922) calls attention to a new procedure in perineal prostatectomies, by which the membranous urethra is avoided and the external sphincter left entirely alone. Thus the occasional functional imperfections obtained by the methods employed now, like lack of control, can be avoided.

A special retractor, devised by Dr. Henry Freiberg, is passed the entire length of the urethra and brings the prostate forward toward the perineum. The prostate is exposed by usual methods and then a curved incision is made through the posterior layer of the prostate, the point of the curve being at the apex of the prostate. The line of cleavage between the capsule and the adenomatous masses is affected by the blunt dissector, and the subsequent dissection, carried out with the finger as is done in the suprapubic enucleation.

Much care in packing must be exercised, especially with regard to the overhanging flap of the bladder wall.

By this method the membranous urethra is not exposed nor at any time in the field of operation. Its intrinsic and extrinsic musculature, as well as the nerve supply, is neither disturbed nor injured.

[B. D. W.]

SPHINCTEROTOMY PER URETHRAM.

GERAGITY (*Jour. of Urology*, May, 1922) says that contracture of the vesical orifice as a fairly frequent cause of urinary obstruction is now well recognized. It is a fibrosis of varying depth, involving the vesical orifice, particularly in its posterior portion; diminishing sphincteric relaxation, and narrowing the vesical outlet during the act of urination.

When these cases have been opened suprapubically and examined it has been found that simple division of the internal sphincter gave immediate relaxation of the orifice, with complete and permanent relief of obstruction.

The modified Bolini operation of Chetwood and the Young "punch," recently suggested by Caulk, whereby a satisfactory end-result is accomplished, are not infrequently followed by prolonged sloughing and serious hemorrhage.

Dr. Geragity suggests using a No. 28 F. endoscopic tube, engaging the vesical orifice in the fenestra, and then introducing a wedge-shaped concave knife which accurately fits, thus dividing the fibrotic ring. Urine is usually only blood-tinged, so a retention catheter is not required.

[B. D. W.]

THE STRUCTURAL BASIS FOR CONGENITAL VALVE FORMATION IN THE POSTERIOR URETHRA.

WATSON (*Jour. of Urology*, May, 1922) declares that from the material and evidence at hand it can be stated that the so-called valves or congenital strictures of the prostatic urethra may have their origin as early as the fourteenth week of fetal life, at which time there were present in the specimens studied no associated secondary sequelae such as the dilated posterior urethra, dilated trabeculated bladder with hydroneurotosis and hydronephrosis, as is usually found in the latter pictures of this condition. The valve formation is due to the growth and attachment of the tip of the colliculus to the roof of the urethra, and occurs at the time of marked epithelial activity of this and associated parts, namely, the invagination of the veru mucosa to form the first observed tubules of the verumontanum; and of passing interest it may be stated that it occurs also at the time the diverticula of the seminal vesicles

are first noted. The view of Wilekens, that these folds are remnants of the cloacal membrane which are left when the cloaca divides into the sinus urogenitalis, perineum and rectum, cannot be sustained, for at the time this anomaly occurs the above structures are all clearly defined. Also Posner's contention that these folds are the result of faulty union of the pars prostatica and pars membranosa of the urethra seems hardly to be supported. Lowsley's statement seems more nearly correct; that they may be anomalies of the Wolffian and Müllerian ducts; but even this is not entirely adequate. The study of the reported specimens would seem to indicate that these obstructing valves have their origin in the anomalous attachment of the lower portion of the colliculus seminalis and inferior striae to the roof of the urethra.

[B. D. W.]

BOSE METASTASIS FROM PRIMARY CARCINOMA OF THE URINARY BLADDER.

WELLS, H. GIDEON (*Journal of Urology*, May, 1922) calls attention to the fact that carcinoma of the urinary bladder, contrary to the prevailing view, not infrequently gives rise to bone metastasis, which may be extensive, even when the bladder tumor is small.

Attention is called to various articles on this subject, showing the lack of bone metastasis or the failure to mention it.

The paper is concluded with a case description in detail, where the complaint was due to large tumor of sternum with no bladder symptoms. A man, sixty-eight, with a typical papillomatous tumor of the urinary bladder which had caused no symptoms of which he complained, developed an enormous secondary growth in the sternum which was completely replaced by tumor tissue. This growth was so large, weighing about the same as a normal human liver, and so symmetrically disposed as to the sternum, that at the autopsy it was believed to be a primary sarcoma of the sternum, the bladder tumor being thought to be merely a coincidental matter; microscopic study, however, showed the tumor of the bone to be derived from the papillary carcinoma of the bladder, as also were the metastatic growths in the ilium, in four ribs, the lung, the kidney and the liver. We can find no record of any other case of bladder carcinoma with a comparable amount of bone metastasis.

[B. D. W.]

A PROCEDURE FOR THE CURE OF PROSTATIC ABSCESS.

BARRINGER, B. S. (*Journal of Urology*, May, 1922) calls attention to fifteen cases of prostatic abscess helped by introducing 1/5 of 1 per cent. novocain and adrenalin with a lumbar puncture needle through the perineum. The anaesthetic is injected ahead of the needle; the needle enters between the urethra and rectum, and then with the index finger in rectum the needle can be plunged into lobes of prostate and pus aspirated.

These 15 cases have been saved general anaesthesia, perineal section damage to the prostatic urethra, and long convalescence by aspirating from the prostate by the needle method; up to date no untoward results have followed this method, and no cases have had to be operated upon subsequent to the aspiration.

Subsequent experience has indicated that the method should be restricted to gonococcus infections; abscesses of the prostate caused by streptococcus, staphylococcus or colon bacilli do not do well after aspiration. The method should not be used when the abscess has broken through the capsule of the prostate and is pointing in the ischioanal fossa, or has extended toward the seminal vesicles. Here operation is indicated.

[B. D. W.]

PHYSIOLOGICAL AND PHARMACOLOGICAL STUDIES OF THE PROSTATE GLAND. RESPONSE OF PROSTATIC MUSCLE TO DRUGS.

MACHT, D. I. (*Journal of Urology*, May, 1922) reports:

1. The effects of various drugs were studied on strips of surviving excised prostate gland of different animals.

2. The preparations responded promptly with contraction to barium chloride and with relaxation to papaverin hydrochloride, thus indicating the presence of muscle tissue.

3. The preparations responded distinctly to treatment with epinephrin and ergotoxin, but failed to respond (with the exception of the rabbit's prostate) to treatment with pilocarpin, physostigmin, muscarin, and atropin.

4. These observations speak in favor of a true sympathetic innervation of the prostate gland.

[B. D. W.]

FURTHER NOTES ON DISEASES OF THE UMBILICUS.

CULLEN (*Surg., Gyn. and Obstet.*, Sept., 1922) contributes one of his characteristically thorough, complete, and beautifully illustrated articles. He describes many bizarre conditions found at the umbilicus, all with most excellent photographs and drawings. Among these, he describes cases of tetanus in the new-born due to careless treatment of the umbilical stump, various forms of granuloma of the umbilicus, polyps, Meckel's diverticulum found in the umbilicus, cysts, adeno-myoma, naevus, moles, papilloma, various forms of carcinoma, and various forms of hernia. The article is most interesting and instructive.

[E. H. R.]

COMBINED TRANSPLEURAL AND TRANSPERITONEAL RESECTION OF THE THORACIC ESOPHAGUS AND THE CARDIA FOR CARCINOMA.

HEDELOM (*Surg., Gyn. and Obstet.*, Sept., 1922) reports a most interesting case in which the above operation was done for carcinoma involving the esophagus and upper portion of the stomach. The operation followed a preliminary resection of the fifth to eleventh ribs and was performed under local anesthesia and gas oxygen. The left pleural cavity and the left peritoneal cavity were opened widely, the diaphragm was split to the hiatus, the esophageal stump was sutured to the skin edges in the middle axillary line, and the gastric stump was brought to the surface near this line. The patient recovered from the operation and is able to take food by mouth through a tube connecting the two stomata. The case is reported in detail and illustrated with photographs.

[E. H. R.]

INFECTION IN THE MEDIASTINUM IN FULMINATING CASES OF EMPYEMA.

DUNHAM (*Surg., Gyn. and Obstet.*, Sept., 1922) presents a very interesting article based on the large number of cases seen during the World War, and as a result of his study, together with the study of the pathological material taken at autopsy, he concludes that, in the fulminating type of empyema, infection of the mediastinum is one of the most fatal complications. This infection is most likely to occur before the defensive reactions of the body are adequate to ward it off, and this type of infection is the immediate cause of death in these cases.

[E. H. R.]

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THE ANNUAL MEETING OF THE NEW ENGLAND SURGICAL SOCIETY.

This meeting was held in Burlington, Vermont, September 22 and 23. About sixty per cent. of the members and several invited guests were present. The weather was ideal and the social features provided by the Vermont members added very much to the enjoyment of those in attendance. A few of the members who traveled by automobile arranged for side trips, in order to enjoy the beauties of the Green Mountains and Lake Champlain. The scientific program was varied. The importance and the manner of presentation of the subjects held the attention of the audience throughout the sessions.

Five papers relating to urological subjects were presented, covering the advances in treating complications of prostate gland surgery, and the importance of pyelography, both in dealing with abnormalities of the ureter and kidney, and also in elucidating obscure conditions met by the general surgeon. Two papers devoted to the surgery of childhood under the titles of "Hare Lip" and "Tuberculous Adenitis" brought out the technic of appropriate operations, and in the latter subject the rules for operative or other treatment, as the cases might require. Under gynecology, the advantage of the operation that makes use of the combined method of shortening of the round ligaments by means of fixation in

the upper anterior part of body of the uterus, and the attachment of the bladder high up on this organ was advocated in suitable cases, and the problems presented by cancer of the cervix were presented. In this latter condition the records of the Massachusetts General Hospital were used to demonstrate the frequency of failure to recognize cancer at the time of a supravaginal hysterectomy, as well as the danger of the development at any later period in the cervical stump. Under anesthesia, the advantage of local over general anesthesia in strangulated hernia was endorsed, although statistics, in some instances, might lead to incorrect conclusions because of failure to study other important factors. A paper on the results of anesthesia in a service, brought out the advantages of careful administration and oversight, and the resulting benefits to the patients.

There were two papers dealing with diverticulum of the oesophagus. The advantages of the two-stage operation and improved technic were explained, and it was shown that under modern methods, as applied to suitable cases, the prospect of good results is much better than secured in former times. The papers on "Myeloma of the Vertebrae," and "Myoma of the Stomach" presented the pathology of these conditions, in addition to the report of interesting cases. The paper by Dr. Eugene Pool of New York, on "Injuries to the Spleen," brought out the difficulties of diagnosis, and the dangers which are increased by delayed treatment in these cases. The remaining papers under the following titles, "Myositis Ossificans," "Enteroliths," "Arterio-mesenteric Obstruction of the Duodenum," "Postoperative Intra-abdominal Adhesions," "Surgery in Diabetes," and "Postoperative Swelling of the Upper Extremity Following Operations on the Breast and Axilla" all brought out animated discussions.

The attempt of the reader of the paper entitled "Hernia from the Employer's Standpoint," to get the Society to take a position on the status of hernia in industrial insurance was not endorsed at this meeting, but a committee was appointed to consider the subject and make a report.

These brief references should lead to the careful perusal of the papers as they will appear in this JOURNAL from time to time.

The only criticism that could be made of the meeting consists in reference to the wealth of material presented, for although the President exhibited energy and control, it was well-nigh impossible to keep strictly to the time specified in the program or to give sufficient time to the discussions following the reading of papers.

The dinner, which was served on the boat on the return trip from Plattsburg, was most enjoyable for its social and gastronomic features. One especially delightful incident was the resuscitation of Dr. Francis S. Watson, who had officially died, according to the records of the Sec-

retary. Dr. Watson evidently enjoyed his return to life, and entertained the Society and guests by anecdotes and reports of his travels abroad. His warning of the great peril to civilization existing in the unsettled and complicated affairs of Europe and Asia was impressive.

Considerable interest was shown in the proposal to have a joint meeting or series of meetings of the several New England medical societies for the purpose of uniting the profession of New England in all questions relating to professional policies and the dissemination of information relating to progress in medicine. Definite action, however, may be taken only after further consideration and a study of a similar plan now being agitated in the American Medical Association.

The officers elected for the ensuing year are as follows:

President—Dr. John F. Thompson, of Portland.

Vice-president—Dr. Lyman Allen, of Burlington.

Secretary—Dr. Philemon E. Truesdale, of Fall River.

Treasurer—Dr. Peer P. Johnson, of Beverly.

The President's address will be published in a later issue of the JOURNAL.

Dr. Thomas Kittredge of Salem, Mass., and Dr. William F. Hazleton of Bellows Falls, Vt., were elected as Honorary Members and the following-named surgeons to active membership:

Dr. Stephen Rushmore, Boston.

Dr. James Walker Jameson, Concord, N. H.

Dr. Samuel Clark Harvey, New Haven, Conn.

Dr. Alvan Davidson, St. Albans, Vt.

Dr. Robert Carlyle Cochrane, Boston.

GROUP INSURANCE.

It will be remembered that the Council of the Massachusetts Medical Society, after careful study of the indemnity insurance offered to physicians, recommended group insurance to its members. By this plan members of the Society may take out insurance at a rate which is the same to each policy holder. About eleven hundred members have adopted this form of insurance.

Another company than the one recommended by the Society is offering insurance on a graded plan according to the nature of the work done by physicians, ranging in price from eighteen to seventy-five dollars for a five to fifteen thousand dollar policy.

So far as our members choose different forms of insurance, the plan advocated by the Council is weakened. The policy of the company recommended by the Council (The United States Fidelity and Casualty Co.) is to contest every suit brought against its policy holders, so as to discourage the custom of some attorneys of attempting to influence physicians and insurance

companies to settle doubtful or unjust claims. It is less expensive, in many instances, to compromise rather than defend a suit, but the adoption of this policy of compromise encourages the instigation of unworthy suits. Since the expense of defense is oftentimes greater than that of compromise, an insurance company cannot carry through the policy of general defense unless there is a large number of policy holders, and it is estimated that the minimum number in a group should not be less than two thousand. It is confidently expected that if over two thousand of our members unite in this group and pursue the plan of contesting every suit, the number of suits will diminish, and after a time the company will be able to furnish the insurance at a figure of eighteen dollars or less.

The question really is whether we will stand together and adopt a plan which will be for the greater benefit of the profession, or whether a sufficient number may be induced to take on classified insurance in one class a little lower than that in the group plan.

Another company has attacked the group plan, and made the point that the testimony of one physician in a group in favor of another in the same group would react unfavorably. Eminent legal opinion has been submitted to the effect that evidence of membership in a group would not be admitted in a trial. This latter company cannot do business in this state except by correspondence, as shown by the following letter:

State House, Boston, August 7, 1922.

O'Neil & Parker, Managers.

United States Fidelity and Guaranty Company,
43 Kilby Street, Boston, Mass.

Attention Mr. John E. O'Neil.

Gentlemen:—

The company about which you inquire is not authorized to do business in this Commonwealth. Its resident policyholders would not be able to bring suit against the company in our courts.

The situation is the same in regard to this company as it is with any unadmitted company, whether doing fire, accident, compensation, liability or any other line of insurance.

Very truly yours,

ARTHUR E. LINNELL,

First Deputy Commissioner.

NEWS ITEMS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending September 23, 1922, the number of deaths reported was 197, against 191 last year, with a rate of 13.41. There were 38 deaths under one year of age, against 26 last year.

The number of cases of principal reportable diseases were: Diphtheria, 42; scarlet fever,

16; measles, 15; whooping-cough, 60; typhoid fever, 12; tuberculosis, 28. Included in the above were the following cases of non-residents: Diphtheria, 7; scarlet fever, 2; typhoid fever, 3; tuberculosis, 3.

Total deaths from these diseases were: Diphtheria, 2; whooping-cough, 4; typhoid fever, 2; tuberculosis, 9. Included in the above were the following cases of non-residents: Diphtheria, 2; typhoid fever, 1.

REMOVAL.—Dr. Theodore L. Story has moved from his former office on Commonwealth Avenue to 141 Sutherland Road, Brighton.

Miscellany.

LEGISLATIVE MATTERS.

MASSACHUSETTS CONTESTS THE FEDERAL MATERNITY AND INFANCY ACT.

The Commonwealth of Massachusetts has, by its Attorney General, petitioned the U. S. Supreme Court for leave to file a bill of complaint in a suit between the State and certain government officials, in order to enjoin them from enforcing the act for the promotion of the welfare and hygiene of maternity and infancy, known as the Sheppard-Towner Act. The defendants named are Andrew W. Mellon, Secretary of the Treasury; Grace Abbott, Chief of the Children's Bureau of the Department of Labor; Charles E. Sawyer, Surgeon General of the Public Health Service; John J. Tigert, Commissioner of Education. Incidentally, Charles E. Sawyer is not the Surgeon General of the Public Health Service and the inclusion of his name as such is an error.

The original bill of complaint, for which permission is asked to file, sets forth the following items:

(1) That three of the defendants constitute the Federal Board of Maternity and Infant Hygiene. No reason is given for joining the Secretary of the Treasury.

(2) That the suit is instituted pursuant to an order of the State Legislature for the purpose of restraining defendants from carrying out the Act.

(3) That Congress unlawfully assumed a power not delegated to it, but reserved to the States by the Tenth Amendment to the Constitution, when it passed this Act. The provisions of the law are then set out in detail. The argument is advanced that appropriations made under the act are for local and not national purposes, that the burden of paying for it falls unequally on the States, and that the sovereign power of the plaintiff is usurped. Action already taken under the law by the Children's Bureau is also set forth.

The petition, which was filed on September 8,

1922, will be considered at the October term of the U. S. Supreme Court, which begins on October 2, 1922.—*Bulletin of the National Health Council.*

RESOLUTIONS.

The National Health Council reports that a resolution has been introduced in the House by Representative Ryan requesting the President to remove Brigadier General C. E. Sawyer, as chief of the coordination section of the Veterans' Bureau, and to fill the position with someone of professional standing, capable of discharging the government's obligation to disabled soldiers. In its resolution it is stated that General Sawyer has claimed that his duty as physician to the President interferes with the responsibilities of this position.

Senator King has introduced a resolution asking for the appointment of a committee to investigate the U. S. Veterans Bureau, with especial reference to the following matters:

(a) Alleged lassitude and delay in the administration of the Veterans' Bureau and in the making of adjustments for compensation and payments.

(b) Rules and regulations promulgated by the Bureau and its organization are so complicated and over-elaborated as to cause intolerable indirection in handling cases.

(c) Great and needless delay in the construction of hospitals and in providing proper hospitalization for relief of disabled war veterans.

(d) Large proportion of appropriations made by Congress is being consumed in overhead expenses instead of being used for the relief of disabled soldiers.

(e) Popular feeling exists all over the country that acts of Congress in behalf of the veterans are not being properly and equitably administered.

The President has recommended the reappointment of Major General M. W. Ireland.

FEATURES OF THE TARIFF BILL.

The report of the conference fixing, among other articles, a 60 per cent. rate on medicinals with a specific duty of 7 cents per pound, if passed, is expected to kill the chemical industry in this country. A duty of 45 per cent. on surgical instruments has been agreed to by the conferees.

REPORT OF THE WORCESTER CITY HOSPITAL.

FOR THE YEAR ENDING NOV. 30, 1921.

The arrangement of the statistics showing the work done in this institution is admirable, for

the facts are presented in available form for comparison with other hospitals of this class.

A summary of this year's work is as follows:

Six thousand, three hundred and twenty-eight (6,328) bed patients were given 104,498 days' treatment at an expense of \$411,107.47.

Thirty-one thousand, three hundred and forty-two (31,432) treatments were given in the out-patient department at an expense of \$22,795.49, or \$7.27 per treatment.

One thousand and sixty-five (1,065) were treated in the accident room at an expense of \$4,187.42, or \$3.93 per patient.

There was a total of 104,498 days' treatment in the hospital proper, 31,342 treatments in the out-patient department and 1,065 treatments in the accident room at a total expenditure of \$438,090.38.

The average expenditure for each bed occupied continuously throughout the year was \$1,435.98, as against \$1,506.45 in 1920. This does not include the expenses of the out-patient department, or of the accident room, nor does it include interest on investment or depreciation of plant.

RECEIPTS.

Balance on hand November 30, 1920....	\$7,433.09
Appropriation from tax levy.....	260,000.75
Income from patients and sales.....	156,535.22
Income from funds.....	16,970.90
	\$440,939.96

EXPENDITURES.

General fund.....	\$432,669.77	
Special funds.....	3,822.15	436,491.92
General fund balance.....	501.31	
Special fund balance.....	3,946.73	
		\$4,448.04

PER CAPITA COST.

The average cost of caring for patients has been \$27.54 per week, as against \$28.89 in 1920.

STATISTICS.

There were admitted to the surgical wards, 2,051 patients, compared with 1,758 last year. The daily average cost of surgical patients was \$4.02, compared with \$4.13 last year.

There were 1,355 patients admitted to the medical wards, compared with 1,386 in 1920. The daily cost of medical patients was \$4.12, compared with \$4.09 in 1920.

The number of children admitted was 642, compared with 707 in 1920. The daily average cost of children was \$4.02, as against \$4.43 in 1920.

There were 1,065 minor accidents treated at a total expense of \$4,187.42, or \$3.93 per treatment, compared with \$4.04 last year.

The number of patients admitted to the maternity service was 655 compared with 583 last

year. There were 630 births, as against 539 in 1920. The daily average cost of this department, including infants as patients, was \$2.95, compared with \$3.35 in 1920.

The average number of beds occupied during the year was 286.29, while the average last year was 255.5.

The average duration of residence in the hospital of free and paying patients was 16.50, compared with 16.31 last year. The number of days' treatment was 104,498, as against 93,257 the year previous.

The largest number in the hospital in any one day was 344, compared with 306 last year; and the smallest number was 229, compared with 220 in 1920.

OUT-PATIENT DEPARTMENT.

There were admitted to the department 6,962 new patients, compared with 4,431 in 1920. They were divided among the different clinics as follows: Medical, 1,435; surgical, 1,529; eye, 687; ear, nose and throat, 1,273; dermatological, 313; gynecological, 166; neurological, 27; orthopedic, 458; genito-urinary, 453; lung, 125; massage, 75; electro-therapeutic, 71; dental, 174; prenatal, 151.

Last year there were 4,431 patients admitted to all clinics, an increase this year of 2,531. The total number of visits this year was 31,342, as compared with 19,636, an increase of 11,706.

The visits among the different divisions were divided as follows: Medical, 3,908; surgical, 9,791; eye, 2,033; ear, nose and throat, 3,093; dermatological, 720; gynecological, 709; neurological, 72; orthopedic, 1,539; genito-urinary, 6,379; lung, 441; massage, 540; electro-therapeutic, 1,387; dental, 355; prenatal, 356.

The daily average treated was 103.1, as compared with 65.02 in 1920.

THE TUBERCULOSIS INSTITUTE.

THE Boston Tuberculosis Association will hold the second Institute for Physicians on Thursday and Friday of this week. The program of the first day and the morning of the second day will be given in the amphitheater of the Massachusetts General Hospital. The afternoon of the second day will be spent at the North Reading State Sanatorium. A complimentary luncheon will be served to those in attendance, and transportation to North Reading has been arranged for those who have applied to Dr. Cleaveland Floyd. These meetings are of the greatest interest to all concerned in the problems of tuberculosis. The success of last year's Institute warrants expectation of a successful series of meetings.

The program is as follows:

BOSTON TUBERCULOSIS ASSOCIATION.

INSTITUTE FOR PHYSICIANS.

Thursday Morning, October 5, 1922—Dr. Cleaveland Floyd Presiding.

10-11—"Problems in Tuberculosis from the General Practitioner's Point of View," by Dr. Allen K. Krause, Professor of Medicine, Johns Hopkins Hospital, Baltimore, Md.

11-11.30—"Tuberculosis from the Standpoint of the Pathologist," by Dr. George Magrath, Medical Examiner, Suffolk County.

11.30-12—"Laboratory Aids in the Diagnosis of Tuberculosis," by Dr. Cleaveland Floyd, Director, Out-Patient Clinic, Boston Sanatorium, Boston, Mass.

12-12.30—"Function of Boards of Health in Relation to Tuberculosis," by Dr. Francis X. Mahoney, City Health Commissioner, Boston, Mass.

12.30-1—"Treatment of Tuberculosis in the State Sanatoria" (with lantern slides), by Dr. Sumner Remick, Director, Division of Tuberculosis, Department of Public Health, Boston, Mass.

Luncheon.

Thursday Afternoon, October 5, 1922—Dr. John B. Hawes, 2nd, Presiding.

2-3—"Coördination of Clinical Pathological Findings in Tuberculosis," by Dr. William H. Smith, Visiting Physician, Massachusetts General Hospital, Boston, Mass.; Dr. Oscar Richardson, Pathologist, Massachusetts General Hospital, Boston, Mass.

3-4—"Correlation of Clinical Findings and X-Ray in Cases of Tuberculosis," by Dr. John B. Hawes, 2nd, Director of Clinic of Pulmonary Diseases, Massachusetts General Hospital, and President, Boston Tuberculosis Association; Dr. George W. Holmes, Roentgenologist, Massachusetts General Hospital, Boston, Mass.

Friday Morning, October 6, 1922—Dr. Cleaveland Floyd Presiding.

10-10.45—"Diagnosis of Tuberculosis," by Dr. H. R. M. Lauder, Physician-in-Chief, Phipps Institute, Philadelphia, Penn.

10.45-11.15—"Physician and Patient," by Dr. Richard Cabot, Professor of Medicine, Harvard University.

11.15-11.35—"Function of the Preventorium in Relation to Tuberculosis in Children," by Dr. Randall Clifford, Examining Physician, Prendergast Preventorium.

Afternoon session at the North Reading State Sanatorium in cooperation with the State Department of Public Health.

Luncheon at North Reading State Sanatorium, leaving Massachusetts General Hospital at 11.35 by automobile.

Friday Afternoon, October 6, 1922—Dr. Eugene R. Kelley Presiding.

1-1.30—"Symptomatic Treatment of Tuberculosis," by Dr. Edward O. Otis, Professor, Tufts College Medical School, Boston, and President, Massachusetts Tuberculosis League.

1.30-2—Luncheon.

2-5—Clinic conducted by Dr. Sumner Remick, Director, Division of Tuberculosis, Department of Public Health, Boston; Dr. Carl C. McCorsion, Superintendent, North Reading State Sanatorium; Dr. Earl C. Willoughby, Assistant Superintendent, North Reading State Sanatorium; Dr. Joseph W. Reddy, Assistant Physician, North Reading State Sanatorium; Dr. P. Challis Bartlett, Medical Examiner and Consultant, the Community Health and Tuberculosis Demonstration, Framingham, Mass.; Dr. John B. Hawes, 2nd, Director of Clinic of Pulmonary Dis-

eases, Massachusetts General Hospital, Boston; Dr. Frank H. Hunt, Resident Medical Officer, Boston Sanatorium, Mattapan; Dr. Bradford Kent, Examiner, Out-Patient Department, Boston Sanatorium; Dr. Frederick T. Lord, Instructor, Harvard Medical School; Dr. Edward O. Otis, Professor, Tufts College Medical School, Boston; Dr. Joseph H. Pratt, Boston.

AS OTHERS SEE US

A DELEGATION from the Municipal Tuberculosis Sanatorium of Chicago recently visited the Forsyth Dental Infirmary. In making the report, after giving details of the founding and operation of the Forsyth Infirmary, the following language is used:

"We, of Chicago, may be pardoned if we are proud and boastful of our splendid tuberculosis organization and of our general health record. Our investigations and observations during our recent visit convinced us that we have every right to be. In no city of the East, and that of course means no city in the country, have they the efficient, effective plan for the fighting of tuberculosis that we are fortunate enough to have in operation.

"Our hats are off to Boston," at the same time warning the 'Hub of the Universe' to 'look to her laurels,' for our coats are off, too, and our sleeves rolled up (metaphorically speaking). We are going to work to get for the little ones of Chicago what the noble-hearted Forsyth men gave to the little ones of Boston, and our plans are already well under way."

It may be that we have overestimated the work of the Boston Tuberculosis and the state organizations. Since the challenge has been published it is in order to send a committee to Chicago and ascertain the relative efficiency of organizations in the Middle West as compared with those in our Eastern cities.

PHYSICIANS IN THE UNITED KINGDOM.

THE *Medical Press and Circular* reports that statistics show that there are nearly forty-six thousand doctors in the United Kingdom, with a population of forty-six million. This makes a proportion of one doctor to a thousand people. There has been a gradual change in this proportion, for in 1881 it was one to fifteen hundred.

Sir Clifford Allbutt, speaking of financial considerations in relation to medicine, says:

The average cost of becoming qualified as a medical practitioner is estimated at £1,500, and this does not take account of what might be earned during this period over and above that expended on maintenance.

Fortunes are not easily made in the medical profession.

"Anyone who enters our profession with the sole object of making a fortune has, of course,

mistaken his calling . . . the main reward of the medical life is the knowledge of good work done."

And the editor of *The Medical Press and Circular* gives this advice to medical students:

I venture to emphasize the advice I have given on a former occasion as to the importance to the student of good health. The sounder the health, the sharper the wits, the more retentive the memory, and the more congenial the work.

Let, then, the student keep as physically fit as possible: by observing regular hours, by carefully regulating his meals, and not hurrying over them, by not over-smoking, and by taking a due amount of physical exercise.

Every student should have his eyes tested as a matter of routine, and wear suitable lenses if these are considered necessary, for even a small error of refraction may greatly impair the capacity for sustained reading.

Equally important is the need to take care of the teeth. The British have the worst teeth in the world, and the future doctor may do much to remedy this evil. He should be able in his own person to prove to his patients that it is possible to retain a sound set of teeth into advanced age.

Let me also impress upon the student not to get into the habit of looking upon the time he spends at his medical studies as so many years of drudgery which have to be got through before the promised land is reached. Rather should he regard them as the best and happiest years of his life (as, in point of fact they probably will turn out to be), and seek to get all the legitimate enjoyment he can out of them.

The method of work is also all-important. The student may do much to lighten his work by concentrating on the essential. It is better to get up the important things thoroughly than to burden the mind with a mass of detail, most of which will probably soon be forgotten. For this reason I advise the student not to neglect the use of small books.

Trust as far as possible to visual memory in learning such a subject as anatomy.

Don't work when you feel tired, and don't work late into the night.

Never miss a coaching class, or college examination. If you have an opportunity of coaching a willing student on a subject you know better than he, do not neglect it; for the teacher often derives more good from his teaching than his pupils. In this way he tests and consolidates his knowledge.

It is a good plan to write a three hours' examination paper at least once a week, after having read up the questions beforehand. In this way facility in expressing the thoughts accurately in writing will be acquired. Many fail in examinations because they are lacking in this respect.

Medical students in this country could read and apply this advice to advantage.

Obituary.

HORATIO ROBINSON STORER, M.D.

DR. HORATIO R. STORER, a noted figure in gynecology and medical jurisprudence in the Boston of fifty years ago, has died at his home in Newport, Rhode Island, at the advanced age of ninety-two years. Although something of an invalid for many years, the end came on September 18, 1922, after an illness of six months. Dr. Storer was the son of David Humphreys Storer, eminent obstetrician and naturalist of Boston, and Abby Jane Brewer, a descendant of Governor Dudley of the Massachusetts Bay Colony. He was born February 27, 1830, was graduated from Harvard College in 1850, where he was a private pupil of Louis Agassiz and Asa Gray, then turning his attention to medicine he received the degree of M.D. from Harvard in 1853. The following two years were spent in study in Paris, London, and Edinburgh, in the last city serving as private assistant to Sir James Y. Simpson, the introducer of chloroform. In 1855 he established himself in Boston and made a specialty of gynecology, a new department of medical practice, while assisting his father, who lectured at Harvard. In 1865 he was chosen to the chair of obstetrics and medical jurisprudence in the Berkshire Medical Institution at Pittsfield, a position he held nominally for four years, though the college closed its doors officially in 1867. To better fit himself for teaching medical jurisprudence Dr. Storer attended the Harvard Law School, taking the degree of LL.B. in 1868. For several years he delivered in Boston a semi-annual course of lectures upon the surgical diseases of women that was very popular among graduates in medicine from all parts of the country. He was visiting physician to the Boston Lying-in Hospital, to St. Elizabeth's Hospital, and to St. Joseph's Home, visiting surgeon to the New England Hospital for Women and Children, and consulting surgeon to the Carney Hospital.

Dr. Storer was one of the founders and at one time president of the "Boston Gynecological Society," established on lines similar to the "Obstetrical Society of Boston" (1861). He edited: "Obstetric Memoirs and Contributions of Professor (Sir) James Y. Simpson of Edinburgh (with Dr. Sir William O. Priestly of London)" 1855; he was the author of "Criminal Abortion in America," 1859; "Criminal Abortion, Its Nature, Its Evidence and Its Law" (with F. F. Heard); "Why Not?—a Book for Every Woman," 1865; "Is it I?—a Book for Every Man," 1869; "On Nurses and Nursing, with Special Reference to the Management of Sick Women," 1868. He edited the journal of the Boston Gynecological Society from 1869 to 1873 and in 1871 he was president of the Association of American Medical Editors, and by special invitation of the California state

board of health in that year delivered a lecture in Sacramento, California, on "Female Hygiene."

In 1872 Dr. Storer's health failed and he went abroad, spending most of the time during the next five years in Italy, where he wrote "Southern Italy as a Health Station for Invalids," 1875. On his return he established his residence in Newport, R. I., where he lived until his death, taking an absorbing interest in civic affairs, founding a natural history society and gathering a remarkable collection of medical medals, begun in 1878, soon after his return from abroad, and presented to the Boston Medical Library in 1900, to be known as the "Storer Memorial Collection of Medical Medals," in memory of David Humphreys Storer, his father, and cared for as curator by his son, Dr. Malcolm Storer of Boston. The collection has been enriched yearly by gifts of the donor and others and is now considered by numismatists the largest of all special collections, both in numbers and in the breadth of the field covered.

On his ninety-first birthday Dr. Storer was presented with a loving cup by citizens of Newport for aid to the public health for nearly fifty years. Fordham (N. Y.) gave him her LL.D. in 1912, and in 1918 he received the gold Liberty Service medal of the National Institute of Social Sciences for his work in aiding control of pestilence among soldiers and sailors of the United States.

Dr. Storer married Emily Alvira Gilmore, who died some years ago. He is survived by three sons and a daughter: John H. Storer, of Waltham; Dr. Malcolm Storer, of Boston; Frank Storer, of Miami, Fla.; and Miss Agnes Storer, of Newport.

Correspondence.

PAUL H. DE KRUIF.

Mr. Editor:

In the BOSTON MEDICAL AND SURGICAL JOURNAL for September 14, page 424, a brief item appears under the title "Exposure of the Proprietary Medicine Industry," relative to Paul H. De Kruijf, the author of a series of articles now running in *Hearst's International*. In this item is published a letter signed "American Medical Association," giving what purports to be all the information on file at this office concerning Paul H. De Kruijf. The letter, in fact, fails to give a good deal of information that is on file in this office.

Your inquiry, to which the letter referred to was an answer, was referred to Dr. Craig, whose untimely death occurred recently. Dr. Craig was, at the time of the receipt of the letter, on his vacation, and, in his absence, it was answered by his secretary, who, unfortunately, did not go beyond the biographical information in our files relative to medical students.

It is unfortunate that the prefix "Dr." is used before De Kruijf's name in the "Doctors and Drug Mongers" series now appearing in *Hearst's International*, because it is bound to lead to a misapprehension. Dr. Paul H. De Kruijf is not a graduate in medicine, although, as stated in the previous letter,

he attended the University of Michigan Medical School for three sessions. He was, however, graduated by the University of Michigan, and from this same institution also received his doctorate degree in philosophy.

Dr. De Kruijf, after graduation, did good work with Novy on anaphylaxis and anaphylo toxin. Later he was appointed associate in the Rockefeller Institute for Medical Research. There, in conjunction with Jacques Loeb and others, he has done important work on bacterial mutations and on the physical properties of bacteria. Among his contributions to scientific literature are:

"Experimental Research on Effect of Intravenous Injection of Gum Salt Solutions"—*Ann. of Surg.*, lxxix, 297, March, 1919.

"Dissociation of Microbic Species"—*J. A. M. A.*, lxxvi, 651, March 5, 1921.

"Dissociation of Microbic Species, Coexistence of Individuals of Different Degrees of Virulence in Cultures of Bacillus of Rabbit Septicemia"—*J. Exper. Med.*, xxxiii, 773, June, 1921.

"Change of Acid Agglutination Optimum as Index of Bacterial Mutation"—*J. Gen. Physiol.*, iv, 387-393, March, 1922.

"Mechanism of Granular Growth of Rabbit Septicemia Bacillus Type G"—*J. Gen. Physiol.*, iv, 395-402, March, 1922.

"Mutation of Bacillus of Rabbit Septicemia"—*J. Exper. Med.*, xxxv, 561-574, April, 1922.

"Virulence and Mutation of Bacillus of Rabbit Septicemia"—*J. Exper. Med.*, xxxv, 621-623, May, 1922.

Also, in conjunction with P. M. Ireland, "Streptolysin"—*J. Infect. Dis.*, xxvi, 285, April, 1920.

Very sincerely yours,

THE JOURNAL A. M. A.,

ARTHUR J. CRAMP,

Propaganda Department.

BRISTOL NORTH DISTRICT MEDICAL SOCIETY.

Mr. Editor:

On September 21, 1922, there was a meeting of the Bristol North District Medical Society. A committee was appointed to communicate with the Bristol South and the Plymouth districts for the purpose of arranging a joint meeting at the Lakeville Tuberculosis Sanatorium some time in November. The paper of the evening was read by Dr. Dunbar of the laboratory of Tufts College on the relations between the laboratory worker and the general practitioner. This was followed by an animated discussion.

Yours sincerely,

JOSEPH L. MURPHY,
District Reporter.

NOTICES.

THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.

"The Association of Military Surgeons of the United States will hold its 31st annual meeting in the Auditorium of the Interior Department Building, Washington, D. C., beginning October 12, at 9.30 A. M. An interesting literary and professional program is in prospect, and the association will have as distinguished guests delegates from the British naval service, from Canada and from Spain. The officers of the association for this year are Captain F. L. Pleadwell, M.C., U. S. Navy, President; Colonel Charles Lynch, M.C., U. S. Army, first vice-president; Colonel David S. Fairchild, Jr., M.C., Iowa N. G., second vice-president; Senior Surgeon J. C. Perry, U. S. P. H. S., third vice-president; and Colonel James Robb Church, U. S. A. (Ret.), Washington, D. C., secretary-treasurer."

AN IMPORTANT MEETING.

On the evening of October 18, Dr. John O. Polak, Professor of Obstetrics and Gynecology in the Long Island College Hospital, will speak at the Boston Medical Library on Caesarean Section. The meeting will be the first of those to be held by the Suffolk District this season, but at all the meetings physicians interested who are not members of the Suffolk District will be welcomed.

UNITED STATES CIVIL SERVICE EXAMINATION.

LABORATORY AID IN BACTERIOLOGY.

November 8, 1922.

The United States Civil Service Commission announces an open competitive examination for laboratory aid in bacteriology on November 8, 1922.

Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., or to the secretary of the United States Civil Service Board. Applications should be properly executed, excluding the medical certificate, and filed with the Commission at Washington in time to arrange for the examination of the applicant.

The second annual meeting of the American Association of Oral and Plastic Surgeons will be held in Boston at the Boston Medical Library, Friday and Saturday, October 20 and 21. An interesting program has been arranged, and those interested in this field of surgery are cordially invited to be present.

MASSACHUSETTS STATE NURSES' ASSOCIATION.

The autumn meeting will be held Saturday, October 7, 1922, at American Legion Hall, Gloucester, Mass. An interesting program has been arranged under four sections: League of Nursing Education, Private Duty Nurses, Public Health Nurses, and Massachusetts State Nursing Association. Congressman A. Platt Andrews will address one of the section meetings.

DISEASES REPORTED TO THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING SEPTEMBER 23, 1922.

<i>Disease.</i>	<i>Cases.</i>	<i>Disease.</i>	<i>Cases.</i>
Anterior poliomyelitis	12	Ophthalmia neonatorum	25
Chicken-pox	14	Pneumonia, lobar	18
Diphtheria	139	Scarlet fever	62
Dog-bite requiring antirabic treatment	3	Syphilis	38
Encephalitis lethargica	3	Suppurative conjunctivitis	6
German measles	3	Trachoma	3
Gonorrhea	88	Tuberculosis, pulmonary	112
Influenza	5	Tuberculosis, other	21
Malaria	1	forms	32
Measles	58	Typhoid fever	32
Mumps	32	Whooping-cough	141
		Hookworm	1

BOOKS RECEIVED.

The JOURNAL acknowledges the receipt of the following books for review:

Principles and Practice of X Ray Technic for Diagnosis. By John A. Metzger. Published by C. V. Mosby Co., St. Louis. 144 pages. Price \$2.75.

Diseases of Skin. Second edition. By Henry H. Hazen. Published by C. V. Mosby Co., St. Louis. 608 pages. Price \$7.50.

Atlas of Syphilis. By Professor Leo V. Zumbusch. Published by William Wood & Co., New York. 31 plates. Price \$15.

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District—Hyannis, November 3, 1922, February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol North, Bristol South, Barnstable and Plymouth Districts will hold joint meetings sometime this fall.

Bristol South District—Fall River, November 2, 1922, May 3, 1923.

Eastern Hampden Medical Association—Springfield, October 5, 1922.

Essex North District—Haverhill, (Semi-Annual Meeting)—Jan. 3, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Essex North, Essex South, Middlesex North and Middlesex South Districts will hold joint meetings October 18. Place undecided. Hampden Districts—With Hampshire District in Holyoke. Regular meeting in October.

Suffolk District—Stated Meeting, October 18, 1922. Combined meeting of Boston Medical Library and Suffolk District, November 22, 1922; December 27, 1922; January 31, 1923; February 28, 1923; March 28, 1923; Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been issued.

Middlesex North District—Meeting Wednesday, October 25, 1922; Wednesday, January 31, 1923.

The four western districts plan to hold a joint meeting early in October.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

Plans are being made for a joint meeting of the Worcester and Worcester North Districts in October.

Massachusetts Medical-Legal Society will meet Wednesday, October 4, 1922, at 2 P. M., at the Boston Medical Library. Ernest L. Hunt, Secretary.

October, 1922. Boston Tuberculosis Association. Tuberculosis Institute for Physicians will be held on October 5 and 6 at the Massachusetts General Hospital, Bernice W. Billings, Boston, Executive Secretary.

The New England Society of Psychiatry will hold its next meeting on October 5th, at the Connecticut State Hospital, Middletown, Connecticut. Readers: Dr. Walter Timme and Frankwood E. Williams, New York City.

WASHINGTON MEETINGS—The Convention of the American Red Cross will be held in Washington, Oct. 9, 10, and 11. The American Child Hygiene Association meets in Washington, Oct. 12, 13, 14.

New England Dermatological Society. Wednesday, October 11, 1922, at 3:30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

The Fifty-First Annual Meeting of the American Public Health Association will be held at Cleveland, Ohio, October 16-19, 1922. Headquarters will be at Hotel Statler.

The American Association of Oral and Plastic Surgeons will hold their annual meeting at the Medical Library, Boston, on October 20th and 21st.

Clinical Congress of the American College of Surgeons will be held in Boston, Mass., on October 23-27, 1922, Franklin H. Martin, Chicago, Director-General.

Massachusetts Association of Boards of Health, October 26, 1922, Boston, Mass., W. H. Allen, Mansfield, Mass., Secretary.

New York and New England Association Railway Surgeons 32nd Annual Meeting at New York City, October 28, 1922, Donald Guthrie, Sayre, Pa., Secretary.

November, 1922. Massachusetts Society of Examining Physicians, (Date and place of meeting undecided), Hilbert F. Day, Secretary. National Cancer Week, November 12 to 18.

December, 1922. New England Dermatological Society Meeting, Wednesday, December 13, 1922, at 3:30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary.

January, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston, W. H. Allen, Mansfield, Mass., Secretary.

February, 1923. New England Dermatological Society Meeting, February 14, 1923, at 3:30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

March, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary.

April, 1923. New England Dermatological Society Meeting, April 11, 1923, at 3:30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston, W. H. Allen, Mansfield, Mass., Secretary.

May, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), American Pediatric Society Meeting, May 31, June 1, and 2, 1923, at French Lick Springs Hotel, French Lick, Ind., H. C. Carpenter, Secretary.

June, 1923. American Medical Association, San Francisco, June 25-29, 1923, Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923. Massachusetts Association of Boards of Health, July 26, Nantasket, W. H. Allen, Mansfield, Mass., Secretary.

*Deceased Sept. 2, 1922.

The Boston Medical and Surgical Journal

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The New England Surgical Society.

PRESIDENTIAL ADDRESS.

SOME CHANGES IN MEDICAL TEACHING AND SURGERY.*

By C. A. PORTER, M.D., BOSTON.

THE custom of having an annual presidential address, before such societies as ours, must occasionally result in much suffering to its members. To-night, therefore, the address will be short, for I shall only give my personal experience, with a few of the surgical changes which have taken place since men of my age graduated.

I want to call your attention to certain tendencies, now showing themselves, all, of course, marking progress, though at times this may seem to be sideways, if not backwards. It is hard, even for those of us who are in close contact with surgical teaching, to realize how much more knowledge is required of the student now than thirty years ago. We had our didactic lectures and weekly visits of thirty or forty students, following the professor through the wards. Some out-patient work was demanded, also bandaging on models, and the application of splints and apparatus. Once a week, operations were performed in the large amphitheatre, attended by

students from all the classes. As most of these operations were external, the student obtained a fair understanding of their general conduct and technique, and learned to admire the resourcefulness and brilliant operations of the master surgeons. Anatomy was considered of great importance, and was closely linked with surgery at the Harvard Medical School. A fourth-year course in anatomical landmarks and operative surgery, although an elective, was eagerly chosen. There were surgical clinics, in which the diagnosis was made by the history, symptoms, and physical examination, aided by a few simple tests. None of the more modern methods of investigation were then known. To become a successful teacher, long experience and a strong personality were necessary. There was very little surgical research, and practically no animal work. I was present when the late Professor Halsted of Baltimore came to the school and demonstrated the advantages of learning intestinal suture on dogs rather than on human beings. These were the days when surgeons came from far and near to see Dr. John Homans perform ovariectomies with a large trocar, pedicle clamp and the Staffordshire knot; and hysterectomies with Koerberle's wire clamp, a turn a day, until the stump slipped back, at the end of a week.

From that time until now, certain tendencies have become more and more clear. Anatomy, exceedingly well taught, has become, with one exception, largely divorced from surgery, and the surgeons no longer work and teach in the ana-

*President's address before the New England Surgical Society meeting, Burlington, Vt., September 29, 1922.

tomical department. Operative surgery has been omitted. Work on animals for technique and research has much increased. The huge ward visits of the second and third year have been replaced by small sections, and in the fourth year, under personal supervision, the student, for two months, spends the day in the ward, laboratory and operating-room, in intimate contact with patients. The big amphitheatres have come to be less and less used, as internal operations increased, and were performed in small rooms. No longer do we see the silent group about the table, but in most clinics, the case is discussed, the steps of the operation are explained, and the surgeon must *operate and teach*, at the same time, in order to maintain attendance and attention.

With the gradual development of sub-departments of surgery, such as genito-urinary surgery and orthopedies, with the still further division into such specialties as brain and nerve surgery, etc., with the still more refined methods of diagnosis and special operative technique, it became impossible for a student to acquire the necessary knowledge in four years.

In addition, came the innumerable methods of investigation in the laboratory, and all sorts of special tests, with all of which he must have some familiarity. Instead of graduating for practice at the end of four years, not a few, but a large majority of the students now add an internship of one or two years; at the large hospitals, a paid resident surgeon's appointment is sought by an increasing number of hospital graduates. Year by year, a change has come over medical teaching. The younger man, without great experience, but with enthusiasm and knowledge of modern scientific research, is giving much of the instruction to small groups of students.

Commencing this year, the Harvard Medical School is to make a definite change in its curriculum. The Faculty has become convinced that the students' hours are too much occupied, and emphasis is to be placed on the fundamental subjects. Accordingly, the number of hours devoted to didactic lectures, and to a less extent to the clinics, has been reduced about one-third in the major subjects, and still more in the specialties. Two afternoons a week are left free for study or a choice of voluntary courses, offered by the various departments. If the making of a thoroughly competent surgeon is to require all these years of undergraduate, hospital, and post-graduate work, there must be established some standard in the future, by which such an ethical and qualified man may become known to the community; a standard, which in time, will be insisted upon by the general practitioner and other surgeons. For this reason, in spite of inevitable mistakes, I believe all of us should do our utmost to aid the work of the American College of Surgeons.

During the last ten years, in the large hospi-

tals, special assignments of a group of similar cases, where unsolved surgical problems existed, have been given to one or more individuals for a specified time. After an intensive study has been carried on, and the end-results of the treatment determined, the plan is to return these cases to the general service, or to reassign them to other individuals. At the Massachusetts General Hospital under this system, we formed the fracture service, and have assigned such rare cases as cancer of the cervix, pulmonary surgery, peripheral nerve surgery and toxic goitres, believing that more advance would thus be made, than if a member of the general staff had only an occasional case. Such specialization must, however, be limited, otherwise the general service suffers, while the individual may acquire an undeserved reputation as the only man who can do a certain kind of work. I suggest that this same system is even more valuable in hospitals of moderate size where, in addition to a few months of regular service, an individual would have a small series of cases for a year.

Throughout the country, less and less surgery is done in the private house. The day of the emergency appendix with the pocket knife, spoon retractor, candle snuffer, and a bit of twine has passed forever, unless it be in some remote farmhouse (if such exists), where the Ford car cannot penetrate, and bring the patient to the hospital. Gasoline transportation and the remarkable growth of the small hospital, both public and private, have entirely changed the aspects of modern surgery, and introduced new questions, to which the answer is very difficult. In almost every large town in New England, there is now a hospital, with a regular staff in attendance.

In our present stage of evolution, no special qualifications are necessary for the practice of surgery. At such a hospital, there is almost always a good operating-room, in charge of an excellent nurse. According to its size and endowment, there is an x-ray apparatus and a laboratory, with more or less scientific equipment. To such a hospital are now brought two types of cases,—the emergencies, to be operated upon by the local surgeon or a consultant, and many chronic cases for diagnosis, and perhaps too often for surgical treatment. These cases were previously taken by the general practitioner to a larger medical center, often to the chief cities.

There is a marked difference between a case of appendix peritonitis and one brought in with a questionable diagnosis of chronic ulcer or cancer of the stomach. In the first, the diagnosis is obvious, and immediate treatment is indicated. A reasonably qualified man should be successful. In the second case the diagnosis and treatment may be doubtful, and will often require either very special methods of examination, an unusual experience in similar cases, or a technique learned by long practice only. The question,

"Should the operation be done?" depends often for its answer on another, "Who is going to do it?" This same question arises sometimes within the walls of large hospitals. The Utopian ideal that the patient should always have the most competent surgeon will never come true, but it is to such societies as ours that the community looks for guidance. Quietly, tactfully, but firmly, we should do all in our power to influence the general practitioner, with whom the final decision rests, to send his patients only to ethical and qualified men. We should ourselves realize, furthermore, that with all the modern refinements in diagnosis and technique it is no disgrace for a general surgeon to refer a patient to another man, unusually qualified in a particular field.

I have spoken of the long course of study and hospital work, which a modern surgeon must take. To this, fortunately, there are exceptions. Such is the energy in this country of many men, that they give up practice for a time, travel, visit clinics, take post-graduate work, and owing to natural ability, make of themselves competent, practical surgeons. So long as such men recognize their limitations, the community is safe.

Far too many laparotomies are done without preliminary study: many a so-called interval appendix has been removed because the operation was easy and safe. Further study showed ureteral calculi. It is appalling how many cases of cancer of the rectum are diagnosed, and occasionally operated upon for hemorrhoids, without even a high rectal examination. Many of these errors come from improper interpretation of x-ray plates, unreliable technique in carrying out laboratory work, and in taking as a fact, the results of special investigation, in which the worker lacks both training and experience. On the other hand, we have nothing but admiration for the surgeon who, finding unexpectedly a condition beyond his ability to treat, closes the wound, and refers the patient to a more experienced consultant. It would take too long to discuss other important changes. Without further comment, I will mention the increasing activity of the State and Public Health Service, Industrial Surgery, with its rapidly increasing efficiency, the Workman's Compensation Board, Social Service, Diagnosis Clinics at the hospitals, and Group Medicine in private practice. All these and other problems must work out salvation.

Before closing, I wish to thank you for the honor you have done me, and to assure you of my continued interest in our society. May I add a thought in a lighter mood? For centuries the cause of lues was sought, and sought in vain. When found at last, it proved to be a *corkscrew*, thus justifying the time-honored association of Bacchus with Venus.

Original Articles.

FACTORS IN DYSPEPSIA.*

BY FRANCIS W. PALFREY, M.D., BOSTON.

DYSPEPSIA is commonly understood to mean discomfort connected with gastric digestion in cases where the diagnosis of organic disease such as ulcer or cancer cannot be established. Since it occurs in different types, it is desirable to recognize these by speaking in the plural of dyspepsias. These figure prominently in general medical practice, but our knowledge of them is not yet such that we can treat them either rationally or empirically with complete success.

The subject of the dyspepsias has interested me from the fact that it has baffled us in the past, in spite of the many hints that seem as if they ought to offer solutions, if only we could read them. It is a tantalizing situation, since so much seems to lie so little beyond our grasp. But the hopeful factor to me has been the feeling that the more searchingly I have gone into individual cases, or groups of cases, the more suggestions I have obtained tending to connect clinical symptoms with deviations from the normal physiology.

My method of attacking the subject has been different from that of most recent investigators, in that they have devoted themselves more largely to objective tests, whereas I have attempted the more uncertain and less scientific method of trying to identify and analyze the patients' subjective symptoms. I must admit that I am attempting to build on insecure foundations, and that my structures are not safe against falling to the ground. Still I feel that there is a chance that by ascending these insecure structures I may get a wider view than if I were to put all my material into foundations. We must remember that dyspepsias are complexes of symptoms, rather than objective cachexias. Most patients do not complain primarily of undernutrition, but rather of discomforts connected with digestion. Many patients who complain of dyspepsia are found on objective tests to have no deficiency of nutrition. Also in routine tests individuals are found whose digestive processes deviate markedly from the normal, both in the directions of deficiency and of excess, but who, in spite of these deviations, have no symptoms of dyspepsia. It seems to me, therefore, that, both in investigation and in clinical dealing with the individual case, we should deal primarily with symptoms, and with other abnormalities only as they may contribute to symptoms. The patients come to us for relief of certain discomforts, and it is only by learning to identify symptoms from the patients' descriptions, or from other evidence, and by

*Read before the Fall River (Mass.) Medical Society, March 22, 1922.

learning ways by which these symptoms may be remedied, that we can furnish such relief.

Gastric digestion is a complicated and delicate process. I remember vividly a demonstration early in my medical school course, in which the stomach of a dog killed immediately after a full meal, was laid open to view, showing a large, moist mass composed of lumps of meat, bread and potato. A dog's dejections are the familiar small masses and coils of homogeneous fecal material; and even of their small bulk only a part is formed of material ingested, the chief bulk being composed of bacteria which have grown in the intestine. Most of the bulky meal, therefore, is digested and absorbed. Of course the absorption and part of the digestion occurs in the intestine, but the stomach begins and makes important progress in the process.

The chief functions of the stomach are two. First, it receives each meal for temporary storage, and passes it along little by little through the pylorus into the intestine, as the small intestine is able to receive it and attend to it. Second, it has the function of digesting or reducing to a fluid state all protein substances,—meat, fish, cooked egg, milk curd and vegetable proteins. In addition to this, some conversion of starches and sugars under the influence of the saliva may go on in the fundus, and the peristalsis in the pyloric portion may have some mechanical effect in dividing soft solid particles, but these actions are probably of little importance.

Viewing thus the digestion in the dog,—and human digestion is undoubtedly closely similar,—the course of gastric digestion, wonderful as it is, seems at first sight fairly simple and trouble-proof. We have all seen the disappearance of a slice of coagulated egg albumin incubated in a test-tube of pepsin-hydrochloric acid solution. We have all been taught that the mucous membrane has a natural immunity to this pepsin-hydrochloric acid. We can watch the peristaltic waves of the stomach under the fluoroscope until the stomach is empty. It is hard so far to see why anything should ever go wrong.

But let us transfer our attention from the dog, who cannot complain of dyspepsia, to the human being. All the facts that I have mentioned above apply also to human digestion. Yet certain human patients, in whose gastric contents according to our ordinary tests no notable abnormality is found, and in whom the radiologist recognizes no departure from what he considers normal in the position, outline, or movements of the stomach, still complain of discomfort which, they are convinced, is connected with their digestion. This leads us to suspect that we have been too hasty in regarding the stomach as a chemical and mechanical automatic machine which should not get out of order, and that disturbances may occur in it

which our present methods of objective examination are not sufficiently delicate to detect.

The truth seems to be that although a normal stomach under normal conditions is practically sensationless and automatic, the stomach is an organ which is far more sensitive than I have suggested hitherto to influences which may cause it to produce abnormal sensations and to depart from its normal function. In this way it is to be contrasted with the heart. If the stomach were as incapable of originating sensations as the heart ordinarily is, if gastric peristalsis were as free from factors which disturb its action as the myocardium, and if the pylorus were as uniform in its action as the heart valves, I suspect that dyspepsia would be less frequent. But the stomach is a more temperamental organ, and is also called upon to adjust itself to more variable conditions. It is lined with a mucous membrane which, we know, under excessive stimulation becomes hyperemic. Although it seems to be less endowed with a function of sensation than is the skin, still it is hard to admit that it is not capable of sensations of discomfort or pain when it is subjected to unfavorable influences, as, for instance, after the ingestion of corrosive poisons. And it is constantly exposed to varying influences, not only to the wide variety of food and drink ingested, but also to changes that may occur in these while they are in the stomach, and also to its own powerful chemical secretion. The motor function of its musculature and the secretory function of the mucous membrane are peculiarly subject to influence by circumstances of environment, emotions, and sensations not primarily involving the stomach, such as those of taste and smell. Also the stomach for normal functioning requires normal functioning of its two orifices; and both of these, according to my conception, are liable to misbehave without reference to hitherto recognized organic disease.

First, as to the pylorus. I have already mentioned that the stomach receives food for storage and peptic digestion, and discharges it little by little to the small intestine. The pylorus has absolute control over the rate of discharge. If the pylorus is closed nothing passes. If the pylorus is open it requires little force of gastric peristalsis to cause any fluid contents to pass. Now clinical investigators in the past, in their enthusiasm for chemical gastric analysis, have described conditions in which they found highly acid liquid contents in the stomach. They jumped at once to the conclusion that this was necessarily due to an excessive rate of secretion of hydrochloric acid, overlooking the alternative possibility that retarded discharge of the normal amount of secretion could cause the same findings, and that also, granted the existence of an excess of gastric secretion, a sufficiently permeable pylorus would rapidly drain the excess away. There is reason to suspect, therefore, that the pylorus, from its command over

the outflow from the stomach, may by improper functioning cause or contribute to abnormal conditions within the stomach: especially by retaining in the stomach food and secretion that so far as the stomach is concerned are ready to pass on to the intestines.

This leads us to consider what is known of the pylorus and its action. The pylorus is the narrow outlet of the stomach, with its surrounding sphincter of smooth muscle, which, when in contraction, closes the outlet, and, when relaxed, leaves the outlet patent. It is occasionally capable of tight spasmodic contractions, which have been described by surgeons as seen by them at operation. But such pylorospasms are unusual and abnormal. On the normal behavior and control of the pylorus our best evidence is from the extremely important observations of Cannon.¹ Cannon reports that in normal digestion the pylorus is closed, but that it relaxes and allows the passage of a jet of gastric contents at more or less periodic intervals under the following conditions: The first signal for opening of the pylorus is the appearance of free hydrochloric acid on its gastric side. Then a jet passes into the duodenum and the pylorus closes, apparently from the effect of the presence of acidity within the duodenum. The pylorus then remains closed until the acidity of the contents of the duodenum is neutralized, by the pancreatic juice, the bile and the duodenal secretion. Then, if there is still free acid on the gastric side, the pylorus again relaxes and another jet passes. And so the process goes on, the pylorus acting as a flood-gate to admit acid gastric contents to the duodenum only in such amounts as can be neutralized promptly in preparation for pancreatic digestion. It is true that there is reason to suspect that this action of the pylorus is sometimes in abeyance. Water seems to pass through the stomach more rapidly than is consistent with its subjection to this process. In some cases of achylia gastrica the stomach seems to empty even more rapidly than normally in spite of absence of the acid signal for opening of the pylorus. Also McClure, Reynolds, and Schwartz,² in certain experiments on human cases, have failed to obtain evidence that these cases under the conditions of their experiments behaved in accordance with Cannon's theory. But these observations do not seem to me sufficiently representative of all conditions of normal digestion to warrant our discarding the whole theory. They rather seem to me to point to exceptions. Also Alvarez,³ from his work on the muscular action of the digestive tract, throws doubt upon the chemical control of the pylorus, and in his concentration upon peristalsis seems to discount or even at times to disregard the action of the pylorus. But Cannon's findings are too exact, and his theory is too consistent with what the pylorus should do for the protection of the duodenum and jejunum, to be seriously doubted.

I have already expressed the opinion that when acid fluid contents are retained in the stomach,—and this includes many cases of ulcer as well as many that are still considered functional dyspepsias,—the fault must be laid to the pylorus. Considering this in the light of Cannon's teachings, it has long been my belief, since in these sufficient acid is clearly present to furnish the first signal for opening, that the difficulty may lie in the neutralization of acid in the duodenum, by the pancreatic secretion, the bile and the intestinal secretion.

The suspicion therefore arises that in dealing with dyspepsia of the so-called hyperacidity type, with or without ulcer, we may be dealing with stomachs which are not themselves primarily at fault, but which are forced to complain because the organs whose secretions enter the duodenum are not keeping pace, and consequently the stomach's finished work is accumulating on its hands.

This leads us to consider what is known of the factors which control the flow into the duodenum of these neutralizing secretions. The pancreatic juice is probably the most important of these since it is the most strongly alkaline in reaction. Unfortunately, in man there are few observations as to its flow; these show merely that the flow takes place during the period of digestion. In animals it is shown that the flow varies in amount and in duration according to the type of food given, and that it is stimulated by the presence of acid in the duodenum. This stimulation by acid in the duodenum seems to be not a nervous but a chemical one, since by treating duodenal mucous membrane with weak hydrochloric acid a product is obtained which on intravenous injection into animals will cause an increase in the flow of pancreatic juice. We have, however, no proved clinical means of increasing the pancreatic juice in man. Of the duodenal secretion still less is known. The bile is probably of less importance than the pancreatic juice as a neutralizer of acid, since it is less strongly alkaline and is normally no greater in daily amount. It seems to be secreted continuously, but discharged into the duodenum intermittently, chiefly as chyme enters the duodenum. But over the flow of bile we have more control. As Pfaff and Balch⁴ have shown, its amount can be increased greatly by the giving of ox-bile by mouth. Clinically, as I have reported before⁵, the administration of bile or bile salts so as to increase the amount of bile is of service in improving the so-called hyperacidity symptoms. If any theoretical suspicions are correct a method of stimulating the flow of pancreatic juice, if we had one, might be of still greater advantage; but even if my theory is wrong, I can still vouch for the fact that bile preparations give symptomatic improvement.

The cardiac orifice of the stomach has received surprisingly little attention in medical investigations except as an opening through which the stomach is entered. It is to be inferred from

such current teachings as bear upon the subject at all that the cardiac orifice should normally resist all passage in the upward direction, whether belching, regurgitation or vomiting. It is my observation, however, that few persons are free from a little, effortless, half unconscious belching after meals, and that such effortless belching, where noticed at all, is an act commonly attended with some slight satisfaction, and seems to indicate a wholesome rather than a disordered gastric function. On the other hand, as I think you will agree, a desire to belch but an inability to do so without marked effort or at all,—“gas on the stomach” or “gastric trouble” as patients are fond of calling it,—occurs with conditions of digestion not satisfactory to the patient. Regurgitation and, still more, vomiting are always abnormal. But in these acts, too, especially in vomiting, it is a matter of common observation that the act may be easy or difficult, and that where it is difficult it involves a more serious disturbance. The cardiac orifice itself is surrounded only by a weak sphincter of smooth muscle, capable of resisting only little pressure. But the oesophagus in man approaches the stomach somewhat obliquely, entering internal to and behind rather than above the fundus. It is strongly suggested to my mind that, in patients who have difficulty in belching or vomiting, the difficulty may be the result of lateral pressure or kinking of the cardiac orifice or lower part of the oesophagus. While I have no proof of this I offer it as a possibility which seems to me to deserve consideration and further investigation.

The stomach as seen at autopsy or by fluoroscope always has contents of two kinds in varying proportions, the fluid or semifluid, and the gaseous. Our attention in the past has been so largely focused upon the behavior and disposition of food, drink and secretions that we have been prone to forget the gaseous contents. Still it seems to be a provision of nature that the stomach should be in part filled with gaseous contents, and provisions of nature are, as a rule, not without some useful purpose. The gaseous contents of the stomach have been sufficiently studied to show that, unlike the gases of the intestines, they are not products of fermentation and putrefaction, but almost entirely air. Moritz⁶ has shown that the pressure is normally about 8 cm. of water, and that pressures of 20 cm. or over cause discomfort. Now it is commonly taught that the stomach is normally protected against increases in internal pressure by a mechanism through which each swallow ingested, results in a corresponding relaxation of the gastric musculature. But I have already alluded to the sensitiveness of the gastric musculature to various influences. It seems too much to expect of an organ with such an erratic musculature to maintain always normal internal pressures without a safety valve. It is strongly suggested to me that such a safety valve is to

be recognized in the normal cardiac orifice in communication with the normal gas-bubble.

If this is true, such abnormal difficulties of upward passage through the cardiac orifice as I have suggested above may well explain uncomfortable feelings of pressure within the stomach.

Now, looking back over what I have said so far, let me enumerate the abnormal conditions that I have mentioned which seem to me to warrant suspicions that they may be the bases of symptoms. First, hyperemia of the mucous membrane. Second, abnormalities of secretion, either in the direction of excess or toward diminution or absence. Third, abnormal motor action, increased, diminished or disturbed. Fourth, retention by the pylorus of gastric contents ready to pass into the duodenum. Fifth and last, valve-like resistance of the cardiac orifice.

Hyperemia of the gastric mucous membrane was seen by Beaumont⁷, nearly a hundred years ago, when through the gastric fistula of his patient, St. Martin, he viewed the interior of the stomach under a variety of conditions of stimulation. The mucous membrane had markedly this appearance of hyperemia following St. Martin's over-indulgence in alcohol. For symptoms that may be connected with such hyperemia, therefore, we may get suggestions from those which occur after the ingestion of overstimulating substances or after overuse of alcohol. In such conditions the most constant symptom is a burning sensation or “raw feeling” in the epigastrium commonly known as heartburn or pyrosis. There is also a tendency to vomit, more or less promptly, after the ingestion of food. These two symptoms seem to me strongly suggested as subjective manifestations of this hyperemia. These same symptoms, it is true, do not occur only after the ingestion of irritants. They occur also in the so-called “acute catarrhal gastritis” and in connection with acute infectious diseases. But reasoning backward, it does not seem to me improbable that here too we have a hyperemia of the gastric mucosa, perhaps from catarrhal inflammation. So I have come to the tentative conclusion that heartburn with a tendency to vomit is evidence of hyperemia of the general gastric mucosa.

But heartburn in these cases which I suspect of representing general hyperemia of the gastric mucosa is rarely intense, except in corrosive poisonings with probable erosions or ulcerations, and in pronounced cases is less prominent than the tendency to vomit. Severe heartburn, on the other hand, is more common in connection with accumulations of acid contents due, according to my conception, to delayed discharge through the pylorus. In these there is less tendency to vomiting. It is suggested to me that these cases of heartburn with acid contents and less tendency to vomit represent irritation chiefly of

the pyloric portion of the stomach, whether hyperemia, erosion or ulcer.

Abnormalities of secretion and of muscular function often seem to bear some relation to each other and are therefore best considered together. Both are found to vary from the normal either in the direction of deficiency or toward excess, and often apparently in sympathy with each other.

First, there are cases in which there seems to be a general inhibition of normal functions of the stomach. An instance of this which I met some years ago is as follows. A physician, 60 years of age, who had previously had a normal digestion, had his first attack of angina pectoris (of which he died suddenly less than a year later) within half an hour after a heavy noon meal containing steak and potatoes. The attack of angina was severe and typical, and he knew what it meant. Through the afternoon and night he was excited and apprehensive but not notably uncomfortable. At eleven o'clock the following forenoon, twenty-three hours after the meal had been eaten, he was nauseated and vomited a large amount of the meat and potato eaten the previous noon, and these articles in the vomitus showed no evidence of digestion during their twenty-three hours in his stomach. He had no further digestive trouble. He had had amyl nitrite but no morphia.

This case has always seemed to me an unusually good example of complete inhibition of gastric digestion, due either to the severity of the angina pain or to the psychic disturbance resulting. But similar instances of vomiting of little digested material after shorter intervals are not rare. They occur especially when the food has been eaten during excitement, distress or illness, or when the same influences have become active shortly after a meal. The chief symptoms that we can associate with such occurrences are disinclination to take the food, and, after it is taken, a sense of constant weight in the epigastrium and gradually increasing nausea until the vomiting occurs. Such vomiting may be an isolated event in the life of the patient. But there are also cases which may be considered to form one class of chronic dyspeptics whose condition consists of such symptoms recurring frequently or constantly. These patients complain of poor appetite and say that what they do eat "lies like lead" in their stomachs; they frequently have nausea and this sometimes leads to vomiting; they are apt to be persons of poor muscular development and posture, and to have headaches and nervous exhaustion. Analyses of gastric contents are apt to show subnormal acidities, and the fluoroscope often shows atonic and not seldom pro-lapsed stomachs. An occasional variation upon the usual symptoms in some of these is the appearance at irregular times of a strong craving for food, which may or may not be well tolerated. It is reasonable to consider such symptoms as manifestations in gastric function

of states of nervous exhaustion and instability.

Achylia gastrica, or the condition of continuous absence of gastric secretion, is of disputed nature. It may belong in the above group, but the gastric and general symptoms are often less marked, and the motility may be normal or increased with rapid emptying of the stomach. It is worth noting in connection with what I have said as to the function of the pylorus that achylia cases are apt to have intestinal symptoms.

Conditions of increased secretion are a little difficult to distinguish from those which, according to my conception, are not conditions of increased secretion but rather conditions of accumulation of normal secretion by delay of its discharge through the pylorus. It is my belief that many cases that have hitherto been considered as due to increased secretion in reality are due only to abnormal accumulation. Still there can be no doubt that in cases called hypersecretion or gastrosuccorrhoea, in which the stomach, even in the absence of food, fills with large amounts of acid gastric juice which has to be vomited or washed out, there must be an excess of secretion, and a disturbance of the normal timing of secretion in response to food. We must recognize therefore that hypersecretion exists, and although the extreme cases are rare, less marked cases are undoubtedly more common. At the same time, it seems to me necessary to assume that when these accumulations of acid secretion in the stomach develop, their accumulation must mean that the pylorus has not risen to the occasion to supply an outlet for it. The chief symptoms are a feeling of fullness increasing to a pain of a quality which suggests either pressure or muscular contraction, and then vomiting of large amounts of acid fluid. The possibility of pylorospasm, in addition to increased secretion, is strongly suggested.

The activity of muscular contractions of the stomach as seen by the fluoroscope, in cases with normal or highly acid contents, may be deficient, normal or increased. It has been my impression that, provided the mucosa, the secretions and the behavior of the orifices are normal, the variations in muscular action are of no great importance in the production of symptoms. Atony or deficient peristalsis in connection with deficient or inhibited secretion has been mentioned already. There is reason to suspect that increased peristalsis or increased tonicity may contribute to the symptoms in the hyperacidity syndrome, or in the cases that I attribute to valve-like resistance of the cardiac orifice, producing the sense of epigastric pressure. But in these I take the motor disturbance to be a contributing and not a prime cause of the trouble. Still, it may be that if Alvarez's theories of the interrelation of the peristaltic activities of the digestive tract as a whole are developed, we may receive new illumination.

My belief that the type of dyspepsia hitherto known as hyperacidity has its basis, at least in part, in a not sufficiently rapid discharge of acid contents through the pylorus, gains support from an examination of the associated symptoms. The intelligent patient commonly gives the following story. At meal times he is hungry but he fears to eat much because he has found that a full meal will cause him to suffer later. After eating he soon begins to feel a burning discomfort in the epigastrium, gradually increasing. He feels that this discomfort comes from the place where the meal has gone to, as if the meal were burning or irritating whatever is surrounding it. He may belch wind but that gives little or no relief. He is apt to regurgitate, and the fluid which rises to his throat is sour and irritating, convincing him that the distress down below, where this sample came from, is due to the irritant quality of this fluid. If the trouble gets bad enough he vomits, and then feels better. From that time on, he knows that emptying the stomach will give relief. During his symptoms his constant wish is that the contents of his stomach would pass through more quickly in the normal manner, but he often becomes discouraged in waiting for them to do so, and induces vomiting. He usually learns that sodium bicarbonate will give temporary relief and uses it frequently, but recognizes that it is only an aid in tiding over the single period of discomfort in which it is taken. Let us attempt a translation of this account into medical terms. Heartburn, or burning sensation where the meal lies in contact with its container, may be translated as an irritated state, probably a hyperemia, of the mucosa of pyloric portion of the stomach; belching and regurgitation, as increased tonicity or motor activity of the stomach in response to irritation; acidity and irritating quality of regurgitated fluid, as pepsin-hydrochloric acid; relief by vomiting or by taking soda, as evacuation or neutralization of pepsin-hydrochloric acid; sense that the discomfort would be relieved if the meal would pass out of the stomach more quickly, as retention by the pylorus. From this translation we may construct the theory that in these patients the symptoms are caused, or at least contributed to, by irritation of the stomach from the accumulation of pepsin-hydrochloric acid, continuing until this pepsin-hydrochloric acid is removed. The patient who has studied physiology says that this is entirely in accord with his sensations. But here we meet with objections; that free hydrochloric acid and pepsin are in contact with the pyloric mucosa in all normal digestion but produce no discomfort; it is a time-honored teaching of physiology, and obviously true in all normal men and animals, that the gastric mucosa is immune against the action of pepsin-hydrochloric acid; also, it is currently taught that the stomach itself is incapable of sensation, and that the burning sensation which seems to come from the stomach

is really due to acid regurgitation into the oesophagus. These teachings have been accepted by physicians, adding to the mystery of the situation. But they do not satisfy the patient. He insists that his stomach at least is not immune or sensationless. He can feel the burning and knows that it comes from where the food lies that he can still feel in his stomach. Nor is he better pleased with the suggestion that his trouble is "gastric hyperaesthesia" and a neurosis.

Let us consider these subjects of sensation and of the immunity further. First, as to the supposed lack of sensation of the stomach. This has been inferred from experiments in which hydrochloric acid solutions introduced by tube into the stomach resulted in no sensation. But to my mind this is not conclusive since the experiments do not seem to have duplicated the condition of long contact which we assume to occur in our patients. And as to the immunity, is it reasonable to suppose that this immunity is absolute, as if the stomach were lined with platinum? Is it not more consistent with most facts of physiology that it should be only a relative immunity, ordinarily sufficient but liable to break down when too strenuously attacked? We know that it breaks down in gastric ulcer which is only a step beyond the condition which we are considering. May not the truth be that pepsin-hydrochloric acid, when it is not passed on through the pylorus in proportion to the rate of its formation, can, by accumulation and long contact, repeated after every meal, break down this immunity, so that in the end the gastric juice does attack the mucosa, causing irritation, hyperemia, erosion or even ulcer? And if this occurs, is it not more the fault of the pylorus in not passing on the eroding fluid, even if this is formed in excess, than the fault of any increase in secretion; and might not an abnormally sluggish pylorus produce the situation with no increase of gastric secretion at all? I believe all this to be probable although it is at present incapable of proof.

The symptoms of a resisting cardiac orifice seem to me obvious when once our attention is directed to them, and surprising only from the lack of attention that they have received in the past. Their neglect in the past I can explain only on the ground that discomforts due to resistance to belching are seldom severe enough in themselves to be disabling, and reach their severest grades in connection with other disorders which have distracted attention from them. In the minds of patients, and also of some physicians, there is a misconception of what belching means. Many patients conceive of the "gas" which they raise in large volumes as a product of fermentation, whereas the truth is that gas-producing fermentation in the stomach of any importance is seldom if ever met except in the cases of marked organic stenosis of the pylorus. Except in these cases with a rare organic disease the "gas" raised is

simply a specimen of the air that is normally in the stomach, or air that has been swallowed in "eribbing," expelled on account of increased tonicities of the stomach. I have already expressed the opinion that easy, quiet belching is to be regarded as a normal process intended to insure the intragastric pressure against undue elevation. But certain patients have more or less habitually a sense of pressure in the epigastrium which they feel should be relieved by belching, but they are able to belch only with difficulty and unsatisfactorily. With the feeling of unrelieved pressure in the stomach are often associated jerky spasmodic contractions of the epigastric muscles (perhaps also of the diaphragm), which are more or less uncomfortable. Patients with these symptoms often resort to the various dyspepsia tablets containing sodium bicarbonate with an irritant aromatic. These, while they usually give temporary relief, tend, when taken habitually, to set up further irritation. Many patients also learn the trick of eribbing, which also seems to aggravate the disorder. Sometimes, too, the symptoms of inability to regulate intragastric pressure are associated with, and increase, the discomfort of other disorders, such as the hyperacidity complex.

From these considerations the following classification of common types of dyspepsia seems to me suggested:

First. Irritable, irritated, very likely hyperemic, states of the mucosa, from improper diet, drugs, alcohol and perhaps catarrhal inflammations, with as presenting symptoms mild pyrosis or "raw feeling" and, in severer instances, a tendency to vomit promptly on the ingestion of food.

Second. Depressed or inhibited states of secretory and motor function, due largely to reflex and psychic influences, with the presenting symptoms of anorexia, sense of weight in the epigastrium, nausea, and vomiting of food not digested in proportion to the duration of its retention in the stomach.

Third. Hypersecretion or gastrosuccorhœa with probable pylorospasm, with as symptoms an increasing sense of fullness, pain, and vomiting of acid fluid in which undigested food is less in evidence.

Fourth. Those cases to which the term hyperacidity is so generally applied that it is not likely to be given up readily, but which, according to my belief, are fundamentally due to a rate of pyloric discharge which is not keeping pace with the acid secretion in the stomach, whether the latter is increased or only normal. This insufficient rate of discharge through the pylorus may be due to deficiency in the neutralizing fluids of the duodenum. The symptoms I believe to be due to irritation, hyperemia, erosion or, in extreme cases, ulceration of the mucosa of the pyloric portion of the stomach, and are: heartburn, acid regurgitation, sense of unduly prolonged retention, and vomit-

ing, often voluntary, for relief. This group differs from the preceding one in that there is not necessarily an excess of acid secretion, and in that pyloric discharge is not abolished; it is going on, but not rapidly enough to keep pace with the secretion.

Fifth. Valvular cardia, with the principal symptom of a sense of epigastric pressure not readily relieved by belching, which may become exaggerated into habitual noisy belching and eribbing.

Combinations of more than one of the above may occur, and some may be aggravated by the coexistence of motor disturbances not yet identified.

Now, how are these five types of disorder to be treated? Here, for lack of time, I must confine myself to general principles. Besides, the details must vary somewhat in each individual case.

First, as to the group which I have attributed to irritability, perhaps hyperemia, of the lining of the stomach, due to irritants ingested or perhaps sometimes to catarrhal inflammation. Here the keynote is to put a stop to the irritation. In severer cases where some of the irritant may be still in the stomach, vomiting should be encouraged by giving warm water, or the stomach may be washed out; then the stomach should be rested by a fast of from twelve to twenty-four hours or more, in which nothing but sips of water or cracked ice are taken. If vomiting is violent after the stomach is empty a small hypodermic of morphine or atropine may be given. But the requests and suggestions of friends that various things be given by mouth "to stop the vomiting" are best rejected. I suspect that there is a stage, if we could recognize it, in the subsidence of these irritations, in which mild stimulation as by certain foods, by capsicum, nux vomica, ginger or champagne may do good. But I am convinced that in practice these more often do harm by increasing and prolonging an irritation that would have subsided sooner under simple rest and starvation. Returning appetite is commonly an indication that feeding may be resumed with milk and lime water in small amounts, then gruels, milk-toast, etc., up to a normal child's diet, and then on to a simple adult diet, with cautions against return to the indiscretions which caused the original disorder. In mild or chronic cases restriction to a simple diet of limited amount, without fried foods, pastry or strong flavorings, and enforcement of mastication, may be sufficient.

Second, as to the group of depressed gastric functions. One of the strongest hints as to the line of attack in these is the very striking improvement that often occurs in these patients if they can be given a complete change of scene or vacation in congenial surroundings. Most cases when they apply for treatment are in a state of discouragement and maladjustment to

their environment from which they see no way out. Many difficult situations are presented, but it is generally true that more can be accomplished by encouragement, and improvement of the general circumstances of daily life, both mental and physical, than by diet and drugs. In diet the most important point is to be sure that the patient has his meals at regular hours at a good home- or boarding-house table and eats moderately of what is provided, resisting the opposing temptations either to omit meals or to eat irregularly between meals. Of drugs, *nux vomica*, with a little dilute hydrochloric acid before meals, sometimes works well as a temporary expedient.

Hypersecretion with pylorospasm, failing more exact knowledge, we have to set down as a neurosis of secretion and contraction, or a reflex of unknown source. On this basis and on empirical grounds treatment should attempt to provide for a calm state of mind during meals and during their digestion; slow, moderate eating, with thorough mastication, and avoidance of articles which are believed to stimulate acid secretion, notably spices, meat flavorings and products of frying. Sometimes the attack seems to be directly precipitated by strongly acid drinks, so these should be particularly warned against. *Belladonna* and *atropine* seem to be of value. In attacks, milk of magnesia or sodium bicarbonate should be given freely, and if the spontaneous relief from vomiting is delayed, the stomach may have to be washed out.

Fourth, the group called hyperacidity, with heartburn and desire for more rapid emptying. Cases of this group are to be suspected of ulcer, according to their duration, severity and obstinacy, and if their symptoms are sufficiently severe, should be put to bed and given one of the accepted gastric ulcer diets even though the special tests of the laboratory and x-ray fail to give a positive diagnosis. Milder cases may be given merely a small bland diet at meal times with crackers and milk at 11, 5, and 10. In all cases, whenever symptoms are present they should be controlled as promptly as possible by magnesium oxide, milk of magnesia or sodium bicarbonate. Where magnesium oxide preparations have the necessary effect they are preferable for frequent use to sodium bicarbonate. But in most cases which obtain temporary relief from these agents which neutralize acid (even including some cases of ulcer), I have found that much can be done to prevent the recurrence of symptoms by giving preparations of ox-bile in enteric coated tablets with the object of increasing the flow of bile. Perhaps the most important practical point that I have to offer is that you can make many patients with sour stomach and heartburn grateful by giving them this bile treatment. Satisfactory preparations are Glycoflauto tablets of Hynson Westcott and Dunning, and Ox-bile Tablets of Burroughs, Wellcome & Co. Three tablets should be given three times a day before meals,

or nine a day, for a week, then reducing. At the same time it is well to urge thorough mastication and a moderately conservative diet without alcohol, but closer restrictions in mild or early cases are unnecessary. In patients who obtain temporary relief from milk of magnesia you can be fairly confident that this treatment will give more permanent relief.

Fifth, in cases of valvular cardiac orifice or difficult belching. Not knowing the exact mechanism, we have no direct method of treating the orifice. Our object therefore should be to diminish the need of belching by reducing, so far as possible, the variations of intragastric pressure. This is best done by providing a diet supplying the necessary food value in small bulk, and the day's total should be divided between six meals instead of three at appropriate intervals. All should be eaten slowly and masticated thoroughly. Excitement, which some patients find to increase their sense of epigastric pressure, should be avoided. Patients should be persuaded to restrain all voluntary attempts to belch, and to break the habit of eribbing, which some have without being conscious of it. Irritant dyspepsia medicines should be stopped, but milk of magnesia and enteric coated bile tablets may be used if there are associated hyperacidity symptoms.

Combinations of the above-mentioned sources of symptoms should be treated by appropriate combinations of treatment.

Finally, there are certain general facts that seem to me worth mentioning for their bearing upon the management of cases of dyspepsia of various types. Most chronically disordered stomachs can still receive without symptoms most of the articles of a normal diet if only these are taken with thorough mastication in sufficiently small amounts. Patients in managing their own diets commonly have their attention too much fixed upon *what* they can eat, and pay too little attention to the amounts. Most dyspeptic patients are impatient and meddlesome with their stomachs, rather than gentle and systematic, and so become confused and discouraged. Osler mentions $3\frac{1}{4}$ ounces of meat, two medium slices of stale bread and 1 ounce of butter three times a day as a useful diet in hyperacidity. Smaller amounts of the same foods can be taken by most dyspeptic patients, and it often serves as an encouraging introduction to treatment to show the patient that he can take even small amounts of those substantial foods which he may formerly have feared, giving him reason to hope that he may gradually resume a normal diet.

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SOME ASPECTS OF THE PROBLEM OF STERILITY.*

By SAMUEL R. MEAKER, M.D., M.R.C.S., BOSTON.

STERILITY is an important subject for several reasons. In the first place, it is a common condition. One marriage in every ten is childless; hence there are in this country today nearly two million sterile couples who are still at the age of potential child-bearing. Again, sterility is usually a matter of vital concern to the persons involved—in many cases the outstanding sorrow of a lifetime. In the third place, the fact that our native population is less by some millions than it might be is of national economic importance, especially in these post-war days.

The fact of sterility can be diagnosed by any layman. The cause of this condition presents a diagnostic problem of the most complex sort. Let the cause be determined in a given case, and the therapeutic question will be answered. The real problem is aetiology.

From the earliest times the reproach of barrenness has been visited upon the woman. Even in these days the wife is often the subject of unnecessary and harmful treatment when in fact the husband is the one at fault. In forty per cent. of my cases the responsibility has rested with the male. This agrees fairly well with the average of the figures for male responsibility given by other observers.

We may lay down as a cardinal principle, then, that every case of sterility is, in the beginning at least, a two-patient problem. It should be our business to rule out the possible responsibility of the male before coming to any conclusions about the female or subjecting her to treatment, even though she may present some definitely abnormal condition.

The male has a double duty to perform. First, he must produce normal spermatozoa. Second, he must deposit those spermatozoa in his wife's cervix. The older books describe in detail how the uterus dips down into the receptaculum seminis and sucks up semen into the cervical canal by rhythmic muscular contraction. There is no real evidence to support this idea. Sperm which is not ejaculated directly into the cervical canal, or at least onto the os externum, is almost certainly wasted, for its life in the vagina is very brief. In forty-three postcoital examinations made between one and two hours after intercourse I have found living spermatozoa in the vagina only four times. In most of these

cases living spermatozoa were recovered from the cervix. All this is in accord with the more extensive observations of Hühner, and supports his conclusion that spermatozoa deposited in the vagina are usually killed within an hour by the acid vaginal secretions. The occasional case where pregnancy has resulted from semen deposited at the introitus or in the vestibule is of medico-legal interest, but must be taken as a rare exception to the general rule.

Thus the postcoital examination gives us important data about the relative responsibility of husband and wife. If normal living spermatozoa are recovered from the cervix, the male is at once exonerated; more could not be expected of any man. It is not necessary always to see the husband in such cases—an advantage sometimes, when both parties do not share equally the desire for children. It is a curious psychologic fact that a woman often resents the suggestion of possible defect in her husband, while she faces with equanimity the demonstration of faults in herself. Also, we often find that among the uneducated sexual vigor in the male is taken to be proof conclusive of his fertilizing power, and so investigation is deemed superfluous.

If dead or feeble spermatozoa are found in the cervix, and the condom-specimen is normal, we may again conclude that the male is not at fault. The trouble here lies in the hostile action of the endocervix toward normal spermatozoa.

If no spermatozoa are recovered from the cervix, and the condom-specimen is normal, then the difficulty must be of a mechanical nature, and may be due to conditions in either the husband or the wife. In the male one should consider premature ejaculation, stricture, and hypospadias. More commonly, however, the trouble in such cases is with the female. A uterus in moderate descensus allows the penis to pass up behind the cervix, and thus ejaculation into the os externum becomes impossible. If there is any foundation for the popular idea that tall women become pregnant more easily than short ones, it is to be found in the fact that in relatively longer vaginæ there is less chance of thus over-shooting the mark. Another condition familiar to all of us is the long conical cervix, often so anteflexed as to bring the external os up against the anterior vaginal wall. Operations such as that of Dudley, designed to correct this abnormality, often fail to cure sterility, because the condition just described is only one manifestation of a general pelvic infantilism. Retroversion of the whole uterus without flexion may likewise bring the cervix up against the anterior vaginal wall. This is a common cause of so-called secondary sterility. The prognosis in such cases is good if the displacement is corrected.

When normal sperm cannot be recovered from the cervix, a condom-specimen should be studied. The more obvious abnormalities of the semen—azoospermia, necrospermia, and marked oligo-

*Read before the Massachusetts Surgical and Gynaecological Society, May 17, 1922.

spermia—are easily recognized. While these are by no means rare, much commoner is another condition which often escapes recognition. I refer to relatively slight diminution in the number and motility of the spermatozoa. This represents the state called by Reynolds "lowered fertility." If such a man is mated with a wife whose fertility also is of low grade, the union is likely to be childless, even though neither person is absolutely sterile. Such a condition of lowered fertility is encountered particularly in those leading a sedentary life and taking an ill-balanced diet. It sometimes responds promptly to the simple correction of hygienic errors. Last November I was consulted by a couple who had one child nine years old; seven years ago there had been a miscarriage, and since then no pregnancy had occurred, though both parties were anxious for children. Every examination of the wife was negative. The husband considered himself to be in perfect health. As a matter of fact, he was about twenty pounds over-weight. His diet was faulty, and his occupation, chemistry, was sedentary and confining. His semen showed about half the usual number of spermatozoa; of those present, perhaps twenty-five per cent. exhibited normal motility, while the remainder were feeble or dead. A diet of 2000 calories rich in vitamins was ordered, small doses of calcium lactate and thyroid extract were prescribed, and he was advised to do daily work in a gymnasium. Two months later another specimen of semen was examined, and proved to be normal in every respect. The wife missed her next period, and is now three months pregnant. We should examine semen with a critical eye. Unless the spermatozoa are entirely satisfactory in all of three respects,—number, motility, and morphology,—there is room for suspicion about the fertilizing power of the male.

The grosser seminal defects, many of which are sequelae of gonorrhea, come within the province of the genito-urinary surgeon. The hopeless cases are those where azoospermia is due to atrophy of the seminiferous tubules. Two years ago Frank Lydston proposed that in such cases, when the desire for children was strong, the following procedure might be carried out, with the full knowledge and consent of the persons involved. Sperm from a healthy donor was to be injected, via the vas deferens, into the vesicles of the husband, who would then deposit that sperm in the natural way in his wife's cervix. In one of my cases this was carried out, but without result.

The possible causes of sterility definitely chargeable to the female are systematically listed in the text-books of gynaecology, including everything from imperforate hymen up to absence of the ovaries. Such an impartial anatomical classification is unfortunate, in that the attention is likely to be focussed on some one anatomical condition which may be related only indirectly, or not at all, to the sterility. For many years much importance was attached to

anteflexion of the corpus uteri, coupled with a small cervical canal and so-called pin-hole os. It was believed that in such a uterus the point of flexion at the os internum presented a mechanical barrier to the ascent of spermatozoa, and so acted as a cause of sterility. As a matter of fact, the condition just described is seen in the majority of virgins, most of whom later find it no hindrance to fertility. A canal which can be traversed by the passive blood-corpuscle is not impervious to the active spermatozoon. On the other hand, such narrowness of the cervical canal has considerable significance when there is infection of the endometrium or endocervix, as free drainage is thereby prevented.

Broadly speaking, we may say that ninety-five per cent. of sterilities for which the female is responsible are due to three groups of causes: abnormalities of secretion in the cervix and uterus; mechanical damage done to the Fallopian tubes; and defects in the production of sex-cells by the ovary.

A common group of causes is found in one or another type of hostility on the part of the endocervix toward spermatozoa. The cervical secretion is normally alkaline in reaction. It may become acid as the result of fermentative changes secondary to infection, or as a manifestation of a systemic acid diathesis in the absence of infection. Any marked degree of acidity is rapidly fatal to spermatozoa. These facts have been known in a general way for many years. I have occasionally found living spermatozoa post coitum in a cervix acid to litmus, but never in one which was acid to methyl red. This suggests a line of investigation which is now being followed out, to determine the normal reactions of vagina and cervix in accurate terms of hydrogen ion concentration, and the effect of such concentrations on semen.

Apart from the matter of acidity, infections of the endocervix and endometrium have a hostile action on the spermatozoa in two other possible ways. One is the direct biochemic effect of bacteria and their toxic products on the male cells. The other mode of action is mechanical, consisting either of a profuse outward flow of secretion from the uterus, or more often of a plug of inspissated mucus stopping the cervical canal and entangling the spermatozoa.

In the treatment of these endometrial and endocervical infectious dilatation and euretteage alone are only occasionally sufficient. The secret of success is the provision for adequate drainage, as in the surgical treatment of infection elsewhere. This is best accomplished, as a rule, by some operation of the Dudley type, which permanently enlarges the cervical canal. At the time of operation and in the course of after-treatment active disinfection of the uterine and cervical cavities should be carried out. When these infections are superimposed on chronic passive congestion of the pelvis, conditions tending to produce this should be corrected. A com-

mon and often overlooked condition of this sort is faulty sexual hygiene.

The commonest single cause of sterility in the female is to be found in old inflammatory damage to the tubes. Most trouble of this sort is the work of the gonococcus, or, less often, of other organisms ascending via the uterus. There are occasional cases, however, where the fimbriated ends of the tubes seal over as a result of low-grade pelvic peritonitis complicating appendicitis. This is common enough to afford an additional reason for not temporizing with subacute or chronic appendix-trouble in young girls.

In the past it has often been very difficult to diagnose tubal occlusion by any means short of exploratory laparotomy. If the acute infection occurred years previously, the history of it is likely to be vague, and pelvic examination may be negative at the time when the patient is seen for sterility.

Two years ago Rubin devised a technique which is very helpful in the investigation of tubal conditions. His procedure consists of the insufflation, under pressure, of gas into the uterus, followed by abdominal x-ray, which will demonstrate a pneumoperitoneum if at least one tube is patent. I have done just over one hundred such insufflations in about forty different patients, and am impressed alike with the usefulness and with the limitations of the method.

The apparatus required is simple. A cylinder of compressed gas is connected to a wash-bottle, in which the visible bubbling serves as an index to the rate of flow. From the wash-bottle leads off a tube which has at its end some sort of nozzle adapted to the external os or to the utero-cervical canal. The pressure of the flowing gas is recorded by a manometer connected to the main channel by a T-piece.

The object is not to produce a massive pneumoperitoneum such as is used in the diagnosis of adhesions or tumors, but merely to demonstrate that some gas does pass into the abdominal cavity. The insufflation of three hundred cubic centimeters is usually sufficient for this purpose. Such a small pneumoperitoneum causes very little discomfort, and so the method is suitable for out-patient or office use. From the diagnostic point of view either oxygen or carbon dioxide may be used equally well. On the ground of more rapid absorption and transient effects the latter gas is preferable.

In the case with normally patent tubes, the gas-pressure at first rises to between fifty and eighty millimeters of mercury, but promptly drops to thirty or forty millimeters as the uterine ends of the tubes are forced open. Almost at once the patient mentions a certain amount of general abdominal discomfort, which she may of her own accord describe as "gas-pain." Such a course of events is quite typical, and may be regarded as definite evidence that a pneumoperitoneum has been produced. This may be confirmed by x-ray, a plate taken after insufflation being compared with a control-plate

taken before. The x-ray should be taken with the head of the table slightly raised; in that position the intra-abdominal gas rises, and even a small collection is demonstrable as a subdiaphragmatic pneumoperitoneum.

When both tubes are occluded, the pressure in the apparatus does not show the typical drop, even though it is raised to one hundred and fifty or two hundred millimeters. No general abdominal discomfort is felt, but some dull pelvic pain may be caused. X-ray will, of course, show no gas in the abdomen.

If a pneumoperitoneum can be thus produced, it is positive proof that at least one tube is patent. No assurance is given that both are open, and nothing is learned by this method about the condition of the ciliated epithelium or the musculature of the patent tube.

If no gas can be insufflated into the abdomen, the presumption is that both tubes are occluded. In one case of mine, however, where insufflation done on three separate occasions failed to produce a pneumoperitoneum, laparotomy showed no organic occlusion, but merely a long mesosalpinx, which had apparently allowed the tube to kink under pressure of the entering gas.

Granting that the fact of occlusion is established, we are still without information as to the location and extent of the tubal damage. Evidence upon these points may be obtained from an x-ray taken after the injection of collargol or other radio-opaque substance.

It has been suggested that the technique just described involves two dangers—the possibility of producing gas-embolism, and the risk of forcing septic material into the peritoneal cavity. With the use of oxygen or carbon dioxide the first danger is remote, as these gases are rapidly taken up by the corpuscles if they get into the blood stream. As to the second possibility, there seems to be little likelihood of driving uterine secretions up through the tubes, since only a gentle gas-flow is used. The chronic tubal infections are usually sealed off, and in acute conditions one would naturally not think of using this technique.

Transuterine insufflation was designed primarily as a diagnostic method. As such it has definite value, though care must be exercised in interpreting the results obtained. It has also, I believe, a place in therapeutics, as a post-operative measure for maintaining during the period of healing the patency of tubes upon which a plastic reconstruction has been done.

The ovarian sterilities form a considerable group, about which our knowledge is as yet very incomplete. Much work remains to be done on what might be termed the minor pathology of the ovary, particularly its functional pathology. It seems certain that abnormal conditions which produce no symptoms of disease may be quite sufficient to prevent normal ovulation. It is of course not possible to study ova as we do spermatozoa, and hence our direct observations along these lines have necessarily been confined to

ovarian conditions found at operation or autopsy. Nevertheless some information can be obtained from a careful history, in combination with rectovaginal-abdominal examination under anaesthesia, this preferably made both during and between periods of menstrual congestion.

The disorders which interfere with the production of normal ova may be grouped under four headings, as constitutional, toxic, endocrine, and mechanical. This is a useful working classification, although in practice some overlapping of the groups often occurs.

Constitutional conditions include malnutrition, anaemia, and cachexia, by whatever cause produced, as well as the results of faulty diet and faulty general hygiene. That such factors have a deleterious effect on the male sex-cells is capable of definite demonstration, and it is reasonable to assume that the female cells may suffer in a similar way. Every stock-breeder knows that poorly nourished and ill-conditioned animals are likely to exhibit lowered fertility, if not absolute sterility. Whether the trouble lies in a diminution in the number of ova produced, or merely in a defect in their capacity for reproduction, the result is the same.

Of toxic conditions which affect the ovary a few examples will suffice. Severe morphinism or alcoholism are known to inhibit both menstruation and ovulation. An occasional sterility has been traced to autointoxication from intestinal stasis. The occurrence of absolutely sterile marriages among syphilis is given by Solomon as twenty-three per cent., as opposed to ten per cent. among the population at large. Whether mumps can affect the germ-cells of the ovary as it occasionally does those of the testis, I do not know. Here again the deficiency may be in the quantity of the ova, in their quality, or in both together.

Endocrine sterilities fall generally into two groups—those cases where complete sexual development has never occurred, and those others who exhibit a premature waning of normal sexual activity. Both states are common; the latter group provides a familiar clinical picture. In it we find the woman who begins to take on weight in her later twenties, to become irregular and scanty in her menstruation, and to lose what little sexual appetite she may once have had. The relation between obesity and sterility has long been noted, but the older writers fell into the error of thinking that the obesity was the cause of sterility, whereas it is really a concomitant result, both arising from a much deeper cause. Organotherapy with whole ovary and thyroid will usually reduce weight somewhat and relieve menopausal symptoms, but it is likely to be disappointing in the treatment of sterility.

Mechanical factors that interfere with ovulation do so mainly by producing an increased intraovarian tension, which acts directly to prevent the full development of the Graafian follicle and the discharge of the ovum. When one con-

siders the anatomic vicissitudes through which the female sex-cell passes in the process of maturation, the wonder is that even one oögonium in fifty successful completes that process. Under conditions that are only slightly abnormal that one cell may easily share the fate of the other forty-nine. Thus sterility is often found in patients whose ovaries contain multiple small follicular cysts, or persistent cystic corpora lutea. A thickened tunica albuginea may be responsible in some cases, as may also old inflammatory adhesions. Both dysmenorrhoea and sterility, when due to such conditions, are frequently relieved by a properly chosen operation.

There is a small but definite group of cases where the most painstaking investigation reveals no abnormality in either husband or wife. These are the cases of so-called mismating, incompatibility, or idiopathic sterility. No reason can be found why either party should be sterile, and yet the union is fruitless. It has occasionally happened that such a couple have separated, each has remarried, and each has had children by the new mate. I know of one such case personally. For every one occasion where this sequence has worked itself out and has gone on record, the possibility of it must be present in hundreds of cases. What is the factor which is to be charged up, not against either individual, but against the mating? In connection with blood-grouping we have learned that in two persons picked haphazard there is a fair chance that the serum of one will cytolyse the red blood corpuscles of the other. Insemination is analogous to blood-transfusion in so far as we expect the cells of one individual to live and flourish in an environment of the tissue fluids of another. There is an idea of long standing that the woman absorbs certain elements of the seminal fluid; if that is so, she has surely abundant opportunity to become sensitized against spermatozoa.

I have been much interested in the possibility of a cytolytic factor in sterility, but I hesitate to present this phase of the subject, because my evidence is not yet sufficient to support definitely any conclusions, and so the idea smacks rather of arm-chair reasoning. I have seen five cases which appeared to belong in this class. One of these disappeared from observation, so that four only were completely studied. It was thought at first that a comparison of the blood-groups of a couple might serve as an index of their general serological relation to each other. The data of Moss, however, show that this is not true as regards a possible spermatolysis, since marriages between individuals with hostile blood-groups are as fruitful as other matings. Accordingly, in the four cases just mentioned the wife's blood-serum was tested directly against the seminal fluid of the husband. In two of these cases prompt loss of motility and definite agglutination of the spermatozoa occurred. In the other two no appreciable change was produced in the semen by the addition of the serum. Before any conclusions can be reached on this subject, we must

have a much more extensive series of observations, including controls on non-sterile patients.

As one reviews the literature of sterility, it is a striking fact that large contributions have been made by two groups of people who are not physicians. The first of these are the pure biologists and the second the stock-breeders and veterinarians. We can take certain leaves from the book of each group. Particularly interesting are such observations as those made by Cuénot and by Castle and Little on yellow mice. These mice are an impure strain carrying yellow as a dominant and black as a recessive color-characteristic. According to Mendelian expectations of four offspring from such parents one should be pure black, one pure yellow, and two mixed, these last actually being yellow, since that characteristic is dominant over the recessive black. As a matter of fact, the offspring were correctly proportioned as regarded the pure blacks and the mixed, but the pure yellows never appeared. Little found that these missing offspring actually started to develop, but were invariably blighted at an early period of embryonic life. The reason appears to be that there are certain hereditary qualities capable of transmission according to Mendel's law, which are in their very nature inimical to the development of an embryo which carries them. Such a lethal factor, so called, is associated with these mice with the yellow color-characteristic. Morgan, working on the fly *Drosophila*, has produced a strain of which two members mated together are always sterile, while either a male or a female of the strain in question is fertile if mated with a partner of another strain.

Whether similar lethal factors exist in the human must be a matter of speculation, but their operation might account for an occasional case of apparently inexplicable sterility. Hühner has noted that the parents of his sterile patients had on the average families as large as did other couples of the same station and circumstances. No conclusions can be drawn from such an observation, however, since the majority of his patients were sterile for reasons which had obviously nothing to do with heredity. This phase of the subject is of purely academic interest, for diagnosis cannot be definite, and treatment is out of the question. At least here is a loophole for the unwary medical student who is trapped by the old joke about sterility being hereditary.

In the Bible eight cases of sterility are recorded. In each case it required a divine miracle to bring about a cure. We have improved somewhat in our mortal ability to handle this condition since the days of old, but nevertheless our results, taken as a whole, must be regarded as unsatisfactory. The problem is a complicated one; the solution in each case is well locked up, and the curette is by no means a skeleton key. Improvement in these results will come with a more careful study of individual cases, and a more accurate knowledge of the aetiological factors involved.

AN INSTRUMENT FOR SUCTION, MEDICATION AND MASSAGE OF TONSILS, AND WITH USES IN GENERAL MEDICINE.

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SUCTION, medication, and massage of tonsils are rightly taking an important place in the physician's armamentarium.

An instrument to fulfill these forms of treatment must have: (1) The right form to enter the mouth, to act as a tongue depressor, to fit the tonsil, and to hold the application without weakening the air current, or allowing the medicated wool to be lost in the mouth. (2) A trap for secretion. (3) Not only an efficient, but also a mobile force readily controlled, to save pain, discomfort, and laceration of tonsillar and pillar structures. (4) Made of material which is resistant to heat and ordinary usage, and readily sterilized.

In practice these factors have been proved in the present instrument.

First. Remembering that in the movement of a fluid, friction increases with the decreased caliber of its container, the shape of the instrument was so made as to give the maximum of action in its air column when force was applied. For this reason a trumpet form body with wide tubing is used, and shaped to the size of the average tonsil.

Second. Medicated lamb's wool may be inserted, and when the instrument is fitted to tonsil with valve partly or entirely closed, and force is applied, it will bring the medication against the tonsil. On the release of pressure, the wool retreats into chamber. This method may be used when the physician wishes to "flood" the tonsil. Wool saturated with witch hazel solution or cooking soda solution is sufficient.

Third. The trap which prevents infection to bulb and does not interfere with its action. No tissue gives such quick reaction to suction as the tonsil, and a surprise awaits the novice in the amount of secretion which may be drawn from its crypts.

Fourth. Essentially, glass is of primary importance as material in such an instrument. So Pyrex glass is used. This is resistant to heat, readily sterilized, and will stand rough usage.

Fifth. No more efficient and mobile force for operation of this instrument can be found than the bulb and valve suggested in the Boston Medical and Surgical Journal, Vol. 185, No. 13, pp. 381-386.

While this instrument was designed especially for the tonsils, it has many uses in general medicine. It forms a handy and effective method of clearing mucus from throat in anesthesia, pus from wounds, depressed nipples, as a breast pump, etc.

AN INVESTIGATION OF THE RELIABILITY OF LABORATORY TESTS AND A DISCUSSION OF TECHNIQUE OF LABORATORIES IN AND NEAR BOSTON.

(Concluded from page 506.)

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PART 4.

Technique for Health Department Diagnostic Tests.—These notes on technique are simply the expression of opinion of the majority of those engaged in the comparative tests previously reported. Several conferences of these workers were held for discussion of the results obtained and for the adoption of more uniform procedures. No claim is made for originality.

DIPHTHERIA.

Staining—Loeffler's alkaline methylene blue is recommended for routine work. Slides should be cold and stain applied for not more than one-half minute. Kinyoun's stain is also recommended; slides cold, stain applied two minutes.

Stains: *Loeffler's Alkaline Methylene Blue.*

Stock sol.: Methylene blue, 1 part; 95 per cent. alcohol, 10 parts.

Stain: Stock sol. 300 c.c. 1-10,000, KOH 1000 c.c.

KINYOUN'S STAIN.

Toluidin Blue	0.5 gr.
Azur II	0.05 gr.
Meth. Blue	0.05 gr.
Alcohol (95%)	25.00 c.c.
Acetic (glacial)	1.00 c.c.
Distilled water to	600.00 c.c.

Dissolve stains in alcohol, add water, add acetic last.

Since some of the laboratories are experimenting with Dr. Albert's stain, the formula is given here, and other laboratories are asked to compare it with the stain in regular use. This applies also to Dr. Kinyoun's stain. It is urged, however, that no new stain, however good, be adopted for routine work until the technician has become thoroughly familiar with it through a long series of comparisons with the stain to which he is accustomed.

ALBERT'S STAIN.

Solution 1.

Toluidin Blue	0.15 gm.
Methyl green	0.20 gm.
Acetic acid (glacial)	1.00 c.c.
Alcohol (95%)	2.00 c.c.
Water (distilled)	100.00 c.c.

After standing for one day, the solution is filtered and is ready for use.


Solution 2.

Iodin	2 gm.
Potassium iodid	3 gm.
Water (distilled)	300 c.c.

The solution is ready for use as soon as the iodine is dissolved entirely. The directions given by Dr. Albert are as follows: "Smears are made on slides or cover-glasses; fixed by heat; stained with Solution I for one minute; washed with water; dried with good absorbent filter paper; stained with Solution II for one minute; washed and dried with filter paper. The granules of the diphtheria bacillus are stained black, the bars dark green and the intermediate portions a light green. Virtually all other bacteria also take a light green stain."

Diagnosis.—Except in diagnosis of young cultures diagnosis should be made only on A, C and D types "Wesbrook."

When other of the major forms are present, as A1, A2, B, B1, B2, C1 or C2, but no granules can be demonstrated, a report of "suspicious" should be made and another culture requested. Forms lower in the scale than D may be disregarded. Typical grouping and irregularity of form shall also be considered, but diagnosis should not be made on these points unsupported by the finding of granules. These rules apply also to swab examinations.

In examinations of young cultures the so-called clove-forms with unstained sputum  and without granules are diagnostic.

An assistant should not be permitted to give an independent report on cultures without proven ability and should also have at least six months' training in routine work in a laboratory handling many cultures. For reports on swabs and young cultures the training should extend over at least a year. When two or more diagnosticians are available, reports should be made as agreed upon by two.

Medium.—Loeffler's blood serum. (Horse, beef or pig serum may be used.)

Incubation.—Fourteen or 15 hours at 37° C. is recommended. For the examination of young cultures five hours' incubation or over, the cultures may be removed but should be replaced for the full period of incubation, and examination made again.

Smears.—Smears should be made representative of the whole growth and obtained by rubbing the platinum loop over the whole surface of the serum.

The material thus obtained should be rubbed, with a drop of fresh tap water, in a thin smear over a glass slide, the smear covering an area of at least 1 inch by one-half inch.

A number of such smears on a large glass slide is allowable, provided care is taken to separate the preparations with wax pencil marks and not to allow spattering from one preparation to another.

Cultures which show liquefaction or sufficient contamination to prevent a diagnosis, or which are excessively dry, shall not be considered satisfactory for examination if the result is negative.

Reports.—The reports of the examination shall be:

1. Diphtheria bacilli found.
2. Diphtheria bacilli not found.
3. Culture contains suspicious forms.

When suspicious forms are found a swab preparation shall be examined, if this has not been done. The culture shall also be reinoculated on fresh media and reincubated for further study.

4. Culture unsatisfactory, contaminated or dry. In the latter two cases, 3 and 4, another culture shall be requested. Another culture shall also be requested when the result of the examination is negative, if the physician's diagnosis is diphtheria, or if it is stated that the inflammatory reaction is in the larynx.

The organisms associated with Vincent's angina, as found in swab examinations, or the unusual predominance of streptococci either in swabs or culture, shall be reported when found.

If there is a suspicion of Vincent's angina a swab preparation stained deeply with methylene blue shall be made.

Virulence Tests.—Virulence tests on all clinical cases shall be run on request, provided the patient has been quarantined three weeks or over. The State laboratory prefers a period of six weeks' quarantine.

Virulence tests may be made when typical morphological organisms are found and the patient has shown no symptoms of the disease. For the virulence test three or more colonies of the organism shall be isolated and grown in bouillon, +1 Fuller's seale, for either twenty-four or forty-eight hours. Do not filter. A day's time may frequently be saved in giving a positive virulence report by use of the twenty-four-hour culture. The culture should, however, be further incubated and if the results of the first inoculation are negative after twenty-four hours, a second pig should be inoculated with the forty-eight-hour culture. A control animal inoculated with the same dosage of toxin, but protected with antitoxin, may be used if desired. For dosage use one-half of one per cent. of the body weight of the guinea-pig, injecting subcutaneously in the abdominal wall. Report positive on death of the guinea-pig or if there is any marked inflammatory reaction in twenty-four hours or more and if autopsy shows marked inflammation of the supra-renal capsules. A negative report shall not be made until at least forty-eight hours after the inoculation.

TUBERCULOSIS.

Rules agreed upon are as follows:

Specimens shall be accepted only in outfits provided by the laboratory.

Specimens which have leaked or run over the sides of the container will not be accepted.

Container should have at least one-fourth volume of an efficient disinfectant.

The outside of the container, box, slip, etc., should be disinfected after receipt at the laboratory.

Sputum should be prepared for examination by shaking, digesting with antiformin, or by a combination of both these processes.

Smears should be at least one inch by one-half inch in area.

For staining, Ziehl's carbol-fuchsin is recommended, applied for five minutes steaming; decolorize with alcohol (denatured or 70 per cent. grain) containing 3 per cent. hydrochloric acid. Other accepted decolorizing agents may be used if preferred. Counterstain with methylene blue.

A positive sputum shall be used as a control. The absence of tubercle bacilli shall be reported only after the specimen has been examined for at least five minutes.

A positive diagnosis shall not be made unless at least ten acid-fast bacilli are found, or unless the bacilli are found in two preparations.

Sputum containers shall be used but once and destroyed.

Slides or centrifuge tubes, if used, shall be cleansed by immersion in sulphuric acid and potassium bichromate for at least twenty-four hours before being used again.

In the examination for tubercle bacilli of specimens other than sputum, such as urine or pus, the finding of acid-fast organisms, or their absence, shall not be considered sufficient evidence for diagnosis, but guinea-pig inoculations shall be made.

Guinea-pig inoculations are made by subcutaneous inoculation of the suspected material in the abdominal wall. The animal should be kept six weeks under observation, then chloroformed and autopsied, a positive diagnosis being made on finding the bacilli in the inguinal glands, spleen or other glands or organs. Animals may be autopsied earlier if enlarged glands are present.

Technique, Widal Test.—Specimens of dried blood which are used in making the agglutination test shall be diluted approximately 1-25 with water or physiological salt solution.

A motile culture of the typhoid bacillus in bouillon which agglutinates readily with positive serum shall be used for the test.

This bouillon culture should be made from a stock agar culture which has been attenuated by storage, for about one month, on ice.

The stock agar culture is kept by transplants from agar to agar.

The bouillon culture should be incubated at a temperature between 20° C. and 37° C. for not more than eighteen hours. The culture shall not be disturbed, and only the surface shall be used for the test; or if the growth is too heavy it may be diluted to correspond to a turbidity standard.

One loop of this culture and one loop of the 1-25 dilution of blood are mixed on a cover-

glass, and a hanging-drop preparation is made which should be examined at once, and again after one hour. A hanging-drop of the culture alone should also be made and used as a control.

The diagnosis of typhoid fever shall be made on complete agglutination and loss of motility in one hour. If the reaction is partial, it should be so reported and another specimen requested.

Positive results on specimens from vaccinated persons are unreliable.

Repeated macroscopic tests, for observation of change in the agglutination titre, are recommended for the diagnosis of typhoid fever in those who have been vaccinated.

GONORRHOEA.

Technique.—Smears are stained by Gram's method, and the diagnosis is made on the presence of gram-negative intracellular diplococci of typical shape and grouping in the pus cells.

In chronic cases a positive finding may be made on the presence of typical organisms in shreds or in epithelial cells.

In any case where such organisms are found the report shall be "Gram-negative, intracellular diplococci present."

Stains, Sterling's Method.—Two c.c. anilin oil + 10 c.c. 95 per cent. alcohol. Shake and add 88 c.c. distilled water.

Five grams of gentian violet are ground in a mortar and the anilin solution added slowly while grinding. Filter.

Directions for Staining.—Sterling's solution of gentian violet, cold, one-half to one minute. Wash. Gram's iodine solution, one minute. Wash. Decolorize with alcohol. Wash. Counterstain with bismarck brown, weak carbol-fuchsin, 2 per cent. aqueous pyronin or other weak solution of a contrasting dye.

Carbol Gentian Violet.—Saturated alcoholic solution of gentian violet, 90 c.c. Five per cent. phenol in water, 1000 c.c. This stain keeps well, but is not as permanent as Sterling's.

WRIGHT'S METHYL VIOLET

Solution 1. Absolute Alcohol, 33.

Aniline oil, 9.

Methyl violet in excess.

Solution 2. Saturated aqueous solution of methyl violet.

The staining solution consists of:

Solution 1. 1 part.

Solution 2. 9 parts.

This mixture will keep at the most for four-teen days.

Burke's Stain (Jour. A. M. A., September 24, 1921). 1. Flood slide with anilin gentian violet or a 1 per cent. solution of aqueous solution of methyl violet. Thoroughly mix with the dye on the slide a few drops, three to eight, depending on the amount of dye, of a 5 per cent. solution of sodium bicarbonate. Allow to stand for two or three minutes.

2. Flush off the excess stain with iodine solution (1 gm. of iodine, 2 gm. of potassium

iodide and 100 c.c. of distilled water) and cover with fresh iodine solution and allow to stand one minute or longer.

3. Wash in water as long as desired and blot off all free water until the surface of the film is practically free of water, but do not allow the film to become dry. The success of the stain depends largely on the proper control of this step.

4. Decolorize with acetone or acetone and ether (one part of ether to from one to three parts of acetone) until the acetone flows from the slide practically uncolored. This usually requires less than ten seconds. The acetone should be placed on the slide. The slide should not be dipped in the decolorizer.

5. Blot dry. The slide quickly dries without blotting.

6. Counterstain for five or ten seconds with a 2 per cent. aqueous solution of safranin O. Exposure to the counterstain can be increased, depending on the excellence of the violet dye used.

7. Wash off excess stain by short exposure to water; blot and dry.

8. Immerse in xylene or turpentine for several minutes, or until clear. Examine.

Technique of Wassermann Test.—For discussion of the Wassermann work as a whole, including all the comparative tests done, it was found difficult to arrange meetings suited to the time of all the participants. Those who were able to be present at these discussions agreed on the use of the technique advised by the State Wassermann Laboratories, using sheep-cells, anti-sheep cell amboceptor and for complement guinea-pig serum.

The reagents are to be prepared and standardized in accordance with the technique of the State Laboratory (*American Journal of Syphilis*, October, 1920).

Minor differences in technique seem to be unavoidable. The exact volume of the test is not important, the majority preferring a volume of 2.1 c.c.

While pooled serums from several guinea-pigs is advised for complement, there is no objection to the use of serum from a single pig, provided it titres correctly.

It is advisable while complement is out of the ice chest, during the tests, to keep it cold by placing it in an iced receptacle.

It is advised that laboratories using the State antigen control it with at least two others, either two cholesterinized antigens of different strength or one cholesterinized and one acetone insoluble antigen. When an acetone insoluble antigen is used the dosage of serum should be .4 c.c. and a control should be run with an equal amount.

No antigen should be used in quantity exceeding one-fourth of the anticomplementary dosage.

The method of dilution of an antigen is of great importance, and differences in the tech-

nique in this dilution may account for false end-results in the test.

In diluting the State antigen the salt solution should be added through a special pipette, prepared to deliver slowly, until a quantity equal to the amount of antigen has been added, after which the amount necessary to complete the dilution is added as quickly as possible. During the first part of the process the mixture is constantly agitated.

It has been promised that as soon as possible a State antigen will be provided with sufficient antigenic power to allow a larger anticomplementary margin, and that accurate antigen dilution pipettes, with directions for their use, will be furnished each laboratory using the State technique.

In reporting results the following terms shall be used: "Positive," "Negative," "Doubtful," "Unsatisfactory." If desired, a positive report may be further characterized as strongly, moderately or weakly positive. Explanation of an "Unsatisfactory" report may be given as "Anticomplementary," "Hemolysed" or "Bacterially contaminated."

DISCUSSION.

In discussing the whole investigation, the writer wishes to express his appreciation of the cordial coöperation of all the laboratories represented and the great interest shown in the comparative tests. Much would be gained in accuracy by the uniform adoption of standard procedures; that is to say, by an agreement to adopt the best methods.

There is a tendency in any laboratory doing routine work to get into a rut, so to speak, and to lose tone. A series of comparative tests awakens the interest and stirs the worker to a careful observance of his technique. Errors in technique which may have been long unrecognized are revealed and corrected and the conferences of technicians from various laboratories tend to introduce more generally improved technical methods. In the Wassermann work the tests with serums from cases in which the clinical history is compared with the findings has been especially helpful in showing the value of the reactions. Accuracy in laboratory tests is indispensable, and it would be of great benefit in this regard if some arrangement could be made for a constant check or control on diagnostic work, either by the submitting of specimens for comparative tests, by submitting, without the knowledge of the technician, known positives or negatives, or by observing the technique and checking the regular routine.

The smaller laboratories labor under a serious handicap, since they deal with but few specimens, and, because of lack of practice, may make erroneous returns. A false negative on a case of diphtheria or a false positive on a Wassermann may, either one, mean serious trouble. If city laboratories where technicians must pass civil service examinations are not free from

error, what shall be said of private laboratories, which are under no restrictions?

Would it not be a good plan to require that all persons who assume the responsibility of reporting on diagnostic tests should pass an adequate examination and should display certificates in their laboratories?

For oversight of the technique of smaller laboratories and for help in their problems a number of towns and cities might associate in the employment of an expert, or such a person might be engaged by some central authority, and his services given to those laboratories requesting the same; his duties to consist in visiting the various laboratories, observing the technique, advising or suggesting improvements, and checking the diagnoses given, to study new technique and to introduce improved methods, to report any marked inefficiency, and in time of emergency, as in an epidemic, to supplement the work of the regular technicians.

Those engaged in the bacterial examination of milk, which is conceded by most public health authorities to be much more important than the chemical tests, should be required to pass examination before a duly qualified board of examiners and should have their laboratories visited and their technique checked, as is now required for those doing the Babcock test.

Private laboratories offering services in diagnosis tests should also come under sufficient expert supervision to safeguard the public.

The diagnostic laboratory has been of incalculable service, and its importance will increase rather than decrease in the years to come. It is to the advantage of all concerned that all such laboratories be maintained at a high point of efficiency.

CONCLUSIONS.

The best approved methods should be agreed upon and adopted as standards by all diagnostic laboratories.

Those engaged in laboratory diagnostic work should have adequate training and should be of proved ability.

Some method of supervision or of mutual association of diagnosticians should be devised to insure the use of uniform technique and as a control on the accuracy of the work.

BONE SARCOMA; PREVALENCE IN MASSACHUSETTS.

By E. A. CODMAN, M.D., BOSTON.

This article is in a measure a continuation of that in the issue of this Journal for August 10, 1922, entitled:—"The Registry of Bone Sarcoma and Medical Human Nature."

Although somewhat less than one-half of the physicians of this State have sent in statements that they do not know of a case of bone sarcoma at present living in Massachusetts, it may be

taken for granted that the great majority of living cases would have been brought to our attention. By checking in the Directory the names of those physicians who have replied we have found the names of those who have not replied and have obtained a fair idea of whether some of the individuals would be likely to know of a case of this disease. We can thus reduce the probability that other cases have escaped our notice. For instance, there are many specialists, many alienists, many doctors doing official work, many virtually retired, etc., whom we can practically cross off the list as negative. In the smaller towns if several physicians replied negatively, we may be fairly sure that no such case is being treated by the other physicians in those towns. Since we know about the cases in most of the large hospitals we may cross off the names of the members of their staffs who have not replied. There are other reasons which it is needless to go into to complete the argument that we think we have let every physician in the State know that we want to hear about every case of Bone Sarcoma, and that we have now located most of the cases.

In the previous article I stated that there were 71 possible cases located. Further investigation has reduced this to only nine, although we have not yet finished our search. If we should include giant-cell tumors, which are still erroneously called sarcomas, there would be at least 22 more.

In other words, the diagnosis of bone sarcoma is frequently made on insufficient evidence. Cases of osteitis fibrosa, syphilis, non-suppurative osteomyelitis, metastatic cancer, myositis ossificans, and ordinary callus are the common causes of confusion. It appears that the diagnosis of a supposed case of bone sarcoma is usually an error and that the patient probably either has a metastatic malignant tumor or a benign disease. Obviously to the individual this is a most important distinction.

There are four practical points brought out by the investigation thus far:

1. That the diagnosis should be made with great caution.

2. That Bloodgood's claim of the benign character of giant-cell tumors (erroneously called sarcoma) is confirmed by experience in Massachusetts.

3. That true osteogenic sarcoma is almost always fatal (the rare exceptions being cases where early amputation is performed).

4. That since only nine living cases could be located in a population of 4,000,000 there are probably only 225 in the whole United States (100,000,000). It certainly is not likely that there are more than double this number at any rate.

This fourth point is of great value to our Committee and will enable us to plan our campaign to study the disease in other States. I wish now to express our sincere thanks to those

who took the trouble to answer the return postal card.

Another point of considerable interest has been brought out. This is the frequency with which amputation has been performed for giant-cell tumor. It should be possible by early diagnosis and complete local excision to save the limb in all such cases. No metastasis need be feared. However, early diagnosis is not an easy matter. Even if the surgeon excises tissue, the pathologist must have had special experience with these tumors and even then is occasionally in doubt. I think that Doctors Mallory, Wright and Wolbach, who have been kind enough to go over the Registry Collection of over 200 cases of supposed sarcoma, will all admit that seeing a large number of these tumors consecutively, has crystallized their ideas of the microscopic appearances so that errors will be less frequent in the future.

Even when the diagnosis of giant-cell tumor is quite certain, there will be found occasions when amputation is the wisest course, for the bone may be destroyed to such an extent as to appear incapable of regeneration sufficient for functional use. This conclusion must be made with caution, however, for it is surprising how in certain cases after x-ray treatment the bone has regenerated.

The Registry has a few cases in which x-ray treatment without help from operation has apparently been effective. It is clear that logically the x-ray may be used in a suspected bone tumor, on the ground that surgery has little chance if the tumor is metastatic or a sarcoma, and delay will do no harm if the lesion is benign. This is perhaps better reasoning than to cut off all the arms and legs on the ground that now and then a life will be saved, for we only know of six five-year cures in the whole United States.

In the individual case these alternatives will continue to present themselves. The Registry Collection is at the disposal of anyone who is confronted by this dilemma. Those who wish to study the Collection so as to be fore-armed should do so before the meeting of the College in October, because after that it is to be sent about to other cities for the opinions of other pathologists.

If there are other cases now in Massachusetts we should be very grateful for their registration.

In order to save trouble for anyone who may wish to notify us of a case, I present the following notes about the cases which are already registered in Massachusetts.

OSTEOGENIC SARCOMAS.

There are only 9 true malignant osteogenic sarcomas now known to be living.

The 1st (femur), registered by Dr. E. C. Cutler from the Peter Bent Brigham Hospital, has at present metastases in the lungs.

The 2nd (tibia), registered by Dr. J. C. Hubbard, is living and well over 5 years after amputation.

The 3rd, a female of 28, whose thigh was amputated at the Massachusetts General in 1918, has had a recurrence in the stump and the thigh has been re-amputated.

The 4th (fibula), registered by Dr. C. G. Mixer, had an amputation of the leg at the Lynn Hospital in December, 1921.

The 5th (femur), registered by Dr. Robert Slater, refused amputation and is under treatment at the Huntington Hospital with intensive x-ray.

The 6th (humerus), reported by Dr. Anthony of Haverhill, had an amputation of the arm in May, 1922.

The 7th, a male of 38, had an amputation of the femur at the Massachusetts General in November, 1921.

The 8th, a girl of 12, had an amputation of the humerus at the Massachusetts General 2 years ago, and has remained well. There is, however, some doubt as to the pathological diagnosis.

The 9th, was in the mid-humerus in a man of 30. The arm was amputated at the Huntington Hospital in January, 1922.

There was one other doubtful case reported by Dr. E. W. Burt of New Bedford in a woman of 57. In this case we have no evidence that the tumor arose in bone.

It will be seen that with the single exception of Dr. Hubbard's case all are recent ones.

GIANT-CELL TUMORS.

The giant-cell tumor cases known to be living number 22. Twelve of these cases were reported by Greenough, Simmons and Harner in the *Journal of Orthopedic Surgery*, Vol. 3, No. 11, pages 602-637, November, 1921, from the Massachusetts General and Huntington Clinics. Besides there are the following:

One, reported by Dr. R. W. Lovett, whose arm was amputated for an enormous giant-cell tumor of the ulna in 1908.

One in the humerus was operated on at the Lynn Hospital in February, 1921.

One in the lower end of the radius is registered by Dr. P. D. Wilson.

One in the spine registered by Dr. W. J. Mixer.

One in the tibia, in a woman of 27, was operated on in Worcester and has been registered by Dr. J. E. Goldthwait.

A girl of 15, with a tumor in the lower end of the femur, was operated on in the Mercy Hospital in Springfield in 1920.

One in the lower end of the femur was registered by Dr. H. F. Newhall of Lynn.

One in a finger was registered by Dr. H. J. Maynard.

One in the lower end of the tibia was operated on at the Peter Bent Brigham Hospital in June, 1922.

One in the lower end of the femur has been registered by Dr. J. S. Stone.

We know of a few more giant-cell tumor cases which have not yet been registered. The importance of registering and following up these giant-cell tumor cases is very great, because there are exceptions to all rules, and it may be that metastases may be observed in some of these cases. As yet, however, no case has come to the attention of the Registry which was clearly a giant-cell tumor and has shown metastasis. Local recurrence after incomplete eurenting is very common, however.

It is quite as important to register cases which refuse operation and are treated by x-ray, radium, Coley serum, etc., as it is to report operated cases. If a case is being thus treated in good faith as a possible bone sarcoma, it should certainly be registered. Nearly all the above cases have microscopic evidence, but oftentimes good x-rays are nearly as positive as pathologic slides.

POSTMORTEM RADIOGRAPHY.

By JAMES A. HONEIL, M.D., BOSTON.

DURING the war, at the U. S. Hospital No. 16, it became a routine procedure to have radiographs made of every patient who died at that institution. The procedure was of inestimable value for instruction and in completing the records of the case. This was especially true in the cases which came to postmortem examination. It was not only of value to the clinician who had, for instance, followed the course of a chronic and complicated case of tuberculosis which perhaps had succumbed to the intervention of an acute disease, but it was of inestimable value in studying the pathology from a radiographic point of view. In this manner a definite check was had on clinical and radiographic diagnosis and the radiograph itself formed a permanent record of the pathology of the case. It also proved of value as regards statistics and research.

During the influenza epidemic of 1918 and 1919 this procedure was of unusual value and the series of radiographs from the very earliest onset of congestion and slight cardiac dilatation to massive pneumonia, substantiated at autopsy, formed one of the most valuable records we had.

At that time I had a series of plate reductions made, so that I had in my possession prints of radiographs, five by seven inches in size, suitable for filing purposes.

Since then it has occurred to me that a procedure similar, but in greater detail, could be applied to the work of the medical examiner. The importance of recording the exact condition of the body as obtained by radiographic means cannot be overestimated. In cases of violent death the presence, size, and exact position of a foreign body, such as a bullet, can be deter-

mined, together with its relation to important structures. It forms a permanent record. As frequently happens in the necessary handling of a body and organs during an autopsy, the foreign body, a bullet for instance, becomes dislodged and much time is lost and unnecessary speculation indulged in to determine its exact previous position. In the case of a wound from a knife or similar object the direction and exact depth can be easily demonstrated. In cases of fracture due to blows by falls or by violence in any form, no better record can be had.

It is often a difficult matter to determine the presence and extent of a fracture, and frequently in determining these fractures by autopsy a tremendous amount of time is consumed. In the case of multiple fractures, sometimes one or more are overlooked. In the case of skull fractures cause and effect can frequently be demonstrated with great exactness. In this manner a large amount of labor would be saved, a record of pronounced value obtained, and corroborative evidence had which the coroner could use with effect in presenting evidence in court in medico-legal cases.

In cases with a questionable cause of death the presence and extent of a disease such as pulmonary tuberculosis or cardiac disease may under certain circumstances be sufficient to modify autopsy procedure. Or, on the other hand, the absence of these conditions or any other demonstrable condition by means of radiography may be sufficient cause for a complete and thorough autopsy.

These records can be made valuable. If the radiographs are reduced by means of photography to such size, say five to seven inches, which is considered sufficiently large for prints to be made from them and which show clearly enough the necessary demonstrable points, then it forms a very complete record of the case. The use of skeleton charts and photography in autopsy work I am perfectly familiar with and I appreciate their value, but it seems to me they can be made additionally complete and valuable by the use of radiography.

A chart is not always convincing to a jury in medico-legal cases but it may be made more so by the use of radiographs.

Here is a field, apart from its more practical aspects, for research that has not been touched and which, to my mind, may give results which cannot as yet be overestimated.

VETERINARY INSPECTION IN NEW YORK CITY.

A Division of Veterinary Inspection has been organized and made effective August 2, 1922, in the Department of Health of New York City.

This Division embraces and controls the veterinary activities of the Bureaus of Preventable Diseases, Foods and Drugs, and Laboratories.

PUBLIC HEALTH LECTURERS FOR THE YEAR 1922.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past three years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Pentado Bill, M.D., Doctor of Public Health, Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist, Instructor in Bacteriology and Pathology, Tufts College Medical School. "Methods of Technique in Collecting Specimens."

Walter E. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital, Specialty: Specific Diagnosis and Treatment of Pneumonia.

William C. Woodward, M.D., Ex-Health Commissioner, City of Boston.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full time School Health Officer.

Secretaries of District Medical Societies writing to ask for these lectures will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating unnecessary correspondence. Please address communications to the Secretary of the Committee, Anne Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

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The Journal does not hold itself responsible for statements made by any contributor.

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THE COUNCIL MEETING.

THE large attendance of councilors at the meeting of October fourth demonstrates the interest of the members, for the temptation to take advantage of a beautiful autumn day for out-of-door recreation must have appealed to many.

Before taking up the business of the meeting the President paid tribute to the memory of Dr. William Andrew Dolan of Fall River, whose sudden death was recently announced. Mention was made of the faithful service in the Council for twenty years rendered by Dr. Dolan and his various professional and civic activities in his community.

The Chair announced the appointment of the following named members of the Committee on the Gorgas Memorial to cooperate with the National Committee: Drs. Frederick C. Shattuck, Samuel B. Woodward, Edmund H. Stevens, Fred B. Lund and William H. Robey, Jr.

Dr. A. P. Merrill of Pittsfield responded to the request for information concerning the annual meeting of the Society, which will be held in Pittsfield next June. He assured the members that the local representatives of the Society, in the western part of the State, are pleased to have this opportunity of providing for the entertainment of the Society, and felt confident that ample accommodations would be available. He spoke of the necessity of having an approxi-

mate estimate of the number of attendants and emphasized the desirability of having responses to a postal card request for information. A very general feeling has been expressed that there will be a large attendance at this meeting, and this plan may add much to the usefulness of the Society. The President added a warm endorsement of this plan. The local Committee of Arrangements consists of Drs. A. P. Merrill, B. W. Paddock, J. B. Thomes, C. H. Richardson and J. A. Sullivan.

The President nominated Dr. C. E. Mongan, Chairman, and Dr. Frederick Irving, Secretary, of the New Section on Obstetrics, and the nominations were confirmed by the Council. Under a resolution previously presented to the Council suggesting holding Council meetings in places other than in Boston at various times, the Secretary reported that he had not secured from the officers of the district societies sufficient endorsement of this suggestion to warrant its adoption.

As requested by the Council last June, the Committee on Public Health reported definitions of the terms "Public Health" and "Public Health Nurse." This brought out an animated discussion by Drs. C. E. Mongan and A. H. Quessy. It was not clearly comprehended whether the remarks were in criticism of the definitions submitted or were intended to amplify and clarify the attitude of the profession toward the common understanding of these terms. Dr. E. F. Cody, of the Committee, seemed to infer that there was a feeling of dissatisfaction with the report submitted, and stoutly maintained that the definitions were clear and comprehensive. The subject is a matter of interest and Dr. Mongan's promise of further discussion will be awaited with interest.

The report of the Committee on Membership and Finance was adopted with a few minor changes. The recommendations for the deprivation of membership for non-payment of dues brought several members to their feet with the promise of personal effort in behalf of some delinquents. The question was raised as to the wisdom of accepting the resignation of a Fellow who had seemed to be guilty of unprofessional conduct, and the recommendation of the Committee was modified by a vote referring the status of a certain Fellow to the Committee on Ethics and Discipline with the request for a definite recommendation.

The Committee appointed for the purpose of canvassing the New England States in order to ascertain the attitude of the other State societies toward the formation of a New England Medical Society reported that there seems to be a strong sentiment in favor of this plan and it was voted to instruct the Committee to continue the functions delegated to it.

According to the opinion rendered by the legal counsel of the Society there is no necessity

of changes in the law relating to authority to hold a larger income, for the statutes permit a latitude in excess of any reasonable expectation for all time.

Dr. H. G. Stetson read the report of the delegates to the House of Delegates of the American Medical Association. The comprehensive statement set forth the important matters considered and merited applause followed its presentation.

The technical details of the meeting will be found in the Secretary's report, which will be published soon. The attention shown and careful consideration of all matters presented demonstrates the quality of service given by the councilors and merits the appreciation of the Society.



THE REGISTRY OF BONE SARCOMAS.

Whether we will it or not, we are obliged to be irritated, amused or instructed, according to our temperaments, by Dr. Codman. Our advice is to be instructed. The persistence which has kept Dr. Codman before us in the columns of the JOURNAL has also been the means of accumulating a unique collection of material, including histological preparations, x-ray plates, gross specimens and case histories of bone tumors from all parts of the country. It has required the same persistence to force this material upon the attention of our leading pathologists in New York, Baltimore and Boston, and to extract from them opinions based upon genuine study.

Valuable progress in the clarification of nomenclature and indications for treatment of bone tumors has already been accomplished from the material now at hand. Information of more scientific value is sure to follow. If Dr. Codman has endeavored to pique us into assisting him, after failure with gentler methods, let us forgive him and reflect upon the service he is rendering at a very great sacrifice of time and energy. Personal knowledge enables the writer of this comment to say that Dr. Codman at first, but only at first, found the expert pathologist almost as reluctant to give his time and thought to the material accumulated as was the practitioner to part with his information and material.

The cases of bone sarcoma already collected by Dr. Codman constitute a larger series than most pathologists see in a lifetime. The collection is to be studied by a group of pathologists and surgeons most qualified for this kind of work, and the results of course given to the medical public. All success to the Registry of Bone Sarcomas!



ANIMAL EXPERIMENTATION AND THE PUBLIC.

It is understood that the Officers of the Suffolk District Medical Society are considering

a meeting open to the public to be held during the autumn in Ford hall on a Sunday afternoon.

The subject proposed is a presentation of what animal experimentation has done for scientific medicine and what medicine in turn has done for the benefit of animals.

For a number of years our medical schools have given lectures open to the public, but it has not been the custom for the medical profession as represented by its societies to hold public meetings in what may be termed an open forum.

The medical profession has in a way held itself rather aloof from contact with the public except through the activities of the various committees which are obliged to deal with matters of public concern. These committees would have their position strengthened by a wider knowledge on the part of the public of medical matters. While the purely technical problems of medicine and surgery are not of public interest, there is every reason why the public should be informed on the broader aspects of those matters which concern medical progress.

It is to be hoped that the meeting proposed will be a success. The interest of the physicians and of the public should be great. If this first meeting compares in interest and attendance with the meetings of the College of Surgeons held in Springfield and Portland, the JOURNAL hopes that not only may other meetings be held in Suffolk but that the other district societies will also hold meetings to present the many topics which intimately concern the public. It is a step toward increasing the influence of the medical profession in civic matters.



AN IMPORTANT MEETING.

On the evening of October 18th, Dr. John O. Polak, Professor of Obstetrics and Gynecology in the Long Island College Hospital, will speak at the Boston Medical Library on Caesarean Section. The meeting will be the first of those to be held by the Suffolk District this season, but at all the meetings physicians interested who are not members of the Suffolk District will be welcomed.

It is almost exactly twenty-five years ago that the late Dr. George Haven performed the first Caesarean Sections to be done in this community, unless we consider the rare cases in which the operation was done on a dying mother in the attempt to save her child. Today the operation is almost commonplace in our suburban hospitals. That the operation is not without risk is shown by the mortality rate of about 10% in one of the best of our private hospitals, open only to a selected group of surgeons. It should be recognized, of course, that this mortality rate is due in part to the condition calling for the operation rather than to the operation itself.

That the indications for the operation are not clearly established is shown by the fact that in

two hospitals situated in neighboring cities of the same general character, the proportion of Caesarean Sections to all births is three-tenths of one per cent. in one and is eighteen per cent. in the other. In other words the proportion of Caesarean Sections is over fifty times as great in one hospital as it is in the other.

Dr. Polak is a man of positive views. His paper and the discussion which it will bring out cannot fail to be of interest and profit. He should be greeted by a large audience.

THE HOSPITAL EXECUTIVE.

Of great importance to the hospital and to the community which it serves is the hospital administrator. A study of the duties and relationships of such an officer has been made by the Committee on the Training of Hospital Executives, appointed at a conference called together in 1920 by the Rockefeller Foundation. The Committee's report points out the importance of the hospital as the meeting place in which come together many and varied interests. The health of communities and of individuals comes in touch, through the hospital, with scientific medicine, with medical research, and with medical education.

Progress in medicine is made available for the patient first of all through the medium of hospitals. The hospital executive, therefore, should be able to appreciate the possibilities of new developments in the technique of medicine and surgery, and should be able to view the matter of community health with a breadth of vision which can only be acquired through previous acquaintance with the problems of public health.

The business aspect of hospital administration, as contrasted with the medical aspect, requires training of an entirely different sort. The capital investment involved in the present hospitals of the United States and Canada probably approximates three billion dollars, with an annual maintenance cost of over half a billion dollars. The value received from the expenditure of this sum depends largely upon the business acumen of the hospital executive.

As a means of providing properly trained hospital executives, the Committee advises the establishment of special university courses. The course suggested would consist of nine months' theoretical training, in which might be given courses on Public Health, Social Sciences, Organization, Hospital Functions and History, Business Science, Institutional Management, Personnel Administration, Community Hospital Needs, the Physical Plant, and Jurisprudence. To this theoretical training should be added four months' practical work in a hospital, and two months spent in visiting various institutions. Opportunity should be given to graduates to do research work along lines connected with some phase of the hospital executive's work.

The value of such a course is self-evident. The benefits derived from it would accrue to the advantage of all those classes in the community in whose lives the hospital plays a part.

"Principles of Hospital Administration and the Training of Hospital Executives."—Report of Committee on Same.

THE SCHOOL FOR THE FEEBLE-MINDED AT WALTHAM.

There are many interesting facts in the last Annual Report of the Massachusetts School for the Feeble-minded at Waltham. At this school some sixteen hundred mentally deficient boys and girls are guarded from the impositions and injuries so often inflicted upon such individuals by their mentally more advanced brethren. They are trained to employ to the fullest extent such intelligence as they possess, and are often taught to perform the more simple tasks of the world in so satisfactory a manner that they are enabled to leave the school and earn a fair living.

By the application of intelligence tests, the mental age of each individual is ascertained, and he is set to work in the grade to which his mental age is adapted. A knowledge of the mental age is of value also in predicting the probable adult mental age of the individual. This prediction is based on the "intelligence quotient," which is found by dividing the mental age by the actual age. Thus a child of eight with a mental age of four has an intelligence quotient of 50%; one of twelve years, with a mental age of eight, has 66 per cent. intelligence. By means of a "Prediction Chart" the final development of each case can be forecast with considerable accuracy.

Most of the feeble-minded can be so trained that they live cheerful and, to a certain degree, useful lives. Dr. Fernald, in his report, speaks of the existence of another class—the defective delinquents—whose management is an entirely different matter. He emphasizes the injustice of having these defective delinquents among the feeble-minded, and points out that although a law providing for their separate maintenance has existed for ten years, it has been ignored. The "good" feeble-minded should be allowed to return to their communities; the "bad," or defective delinquents, should be under life-long supervision at an institution.

That the former class can return to the community with safety is borne out by the studies of Miss Mabel A. Matthews, Head Social Worker at Waverley. She found that of 100 boys allowed to leave the School, most of whom had been out between two and three years, only three had been arrested. Of the others, all but two of the adults had been self-supporting; many of them had bank accounts. The work and the wages of

these boys were studied and classified according to the menal age of each. It is encouraging to realize that so much can be done by society for those whom Nature has treated so hardly.

GASOLINE POISONING.

The United States Public Health Service has published an account of a study relating to the effect of inhaled gasoline on a group of workers employed in cancelling coupons. Each worker was exposed to the liberation of 152.4 minims of gasoline per hour. The maximum amount possible to be inhaled amounted to 36.5 per hour, or 255.4 minims in a 7-hour working day. This amount may not have been inhaled because of variation of air currents, but the nature of the work prevented the use of active ventilation, so that the amount inhaled may have been almost equal to the possible maximum. The gasoline was used in cleaning the belts that fed the coupons into the cancelling machine. The gasoline was kept in open containers within 20 inches of the face of each worker, and had to be applied to the feed belts quite constantly. The report gives the effects of gasoline poisoning found among the workers in the following table:

Symptoms	Male	Female
Headache.....	4	9
Daily headache.....	4	4
Varying headaches.....	0	5
Drowsiness.....	3	8
Afternoon drowsiness.....	2	3
Dizziness.....	3	5
Heaviness in head.....	1	8
Dull aching pain in eyes.....	2	6
Irritated eyes (burning, smarting, or gritty feeling).....	2	10
Excessive lachrymation (watery eyes).....	1	10
Blurred vision.....	0	3
Puffed eyelids.....	0	1
Slight conjunctivitis, one eye.....	1	1
Slight conjunctivitis, both eyes.....	1	2
Impaired taste.....	0	1
Continued hoarseness.....	0	1
Sore and inflamed throat.....	0	4
Constant irritation of throat (tickling or itching).....	0	2
Constant dryness of throat.....	0	4
Extreme nervousness.....	0	3
Feeling of worry.....	0	3
Easily angered.....	0	5
Often easily excited.....	0	5
Complaint of the work being nerve racking.....	2	2
Insomnia.....	0	2
Tingling or crawling sensation of the skin of left arm and fingers.....	0	1
Tingling or crawling sensation of skin on right hand and forearm.....	0	1
Complaint of extreme muscular weakness.....	0	4
Extreme tiredness in the morning.....	3	0
Complaint of gradual loss of use of left forearm, wrist and hand.....	0	1
Exhaustion or "all-in" condition by mid-afternoon.....	0	4
Overtiredness at quitting time.....	0	8
Occasional attack of colic.....	0	2

Symptoms	Male	Female
Nausea (in two cases occurred daily, other cases at various times).....	2	3
Loss of appetite.....	1	6
Constipation.....	0	4
Loss of weight.....	0	1
Frequent urination, condition lasting from a few days to four months.....	2	1

In seeking for substitutes it was found that kerosene of high grade colored with alkanet and deodorized with anise oil could be used to advantage, for the dispensary visits decreased in number and efficiency was increased after this change. It was found impracticable to use alcohol because of its greater cost, and also because of the temptation on the part of the employees to abstract quantities for home use.

The employment of gasoline has become so general that the effects following its use present definite medical problems.

NEWS ITEMS.

Dr. George L. Tobey, Jr., and Dr. Harold G. Tobey, have removed to 270 Commonwealth Ave., Boston, between Fairfield and Gloucester Streets.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Sept. 30, 1922, the number of deaths reported was 199 against 198 last year, with a rate of 13.58. There were 48 deaths under one year of age against 36 last year.

The number of cases of principal reportable diseases were: diphtheria, 57; scarlet fever, 15; measles, 34; whooping cough, 41; typhoid fever, 4; tuberculosis, 30.

Included in the above, were the following cases of non-residents: diphtheria, 3; scarlet fever, 2; measles, 1; whooping cough, 1; tuberculosis, 1.

Total deaths from these diseases were: diphtheria, 1; scarlet fever, 1; measles, 1; whooping cough, 9; tuberculosis, 10.

Included in the above, were the following cases of non-residents: diphtheria, 1; whooping cough, 3; tuberculosis, 1.

VISITING SCIENTISTS.—A group of professors from the University of Strasbourg is in this country in response to an invitation from the Rockefeller Foundation. After visiting the Foundation the larger medical schools of the country will be inspected.

THE LOSS OF THE STRATHCONA.—Dr. Grenfell's mission ship after twenty years of service sank October 2nd, 1922, off the coast of Cabot Island. This disaster calls for substantial interest in the work of the mission. Dr. Grenfell is in Europe. He is expected to deliver two lectures in London.

INVITATION TO DR. JOSEPHINE BAKER.—The Medical Section of the League of Nations has invited Dr. Josephine Baker, Director of the Bureau of Child Hygiene, New York City, to become a member and participate in its deliberations.

BEQUEST TO JOHNS HOPKINS.—By the will of Dr. William S. Halsted, lately professor of surgery in the Johns Hopkins University, the residue of his estate, valued at approximately \$100,000, is left to the university, subject to the payment annually to his widow of five per cent. of the value of the legacy. The bequest is to be devoted to research in medicine, preferably in Surgery.—*Science*, Sept. 29, 1922.

Miscellany.

SCHICK TOXIN-ANTITOXIN ACTIVITIES OF BOSTON HEALTH DEPARTMENT TO DATE.

The interest shown and the work conducted by the Boston Health Department in preventive measures, relating to diphtheria, merits the gratitude of the people. The good accomplished may never be fully appreciated by the laity but every blessing conferred by preventive medicine adds to the common welfare. If physicians and nurses will supplement the work done by endorsement and explanation of its certain benefits, many more of the people will realize that the best use of public funds lies in the application of efficient methods conducive to the preservation of health.

Encouragement extended to the Health Department and the Associate Council, will bring dividends of health as well as material prosperity. The JOURNAL congratulates the citizens of Boston on the showing made by the Health Department and is pleased to publish the letter of the Commissioner with the detailed statements.

CITY OF BOSTON.

HEALTH DEPARTMENT.

September 28, 1922.

Boston Medical and Surgical Journal:

Your letter has been received with the request for material in connection with the Schick Toxin-Antitoxin activities of this department, and with much pleasure I am enclosing a brief synopsis of the work done from May 6, 1922, to date.

Very truly yours,

F. X. MAHONEY,
Health Commissioner.

Closely following the plan originated by Dr. Zingher of New York, conferences were held with the heads of the various private institutions of the city which would provide suitable subjects for the test. At these conferences the value of the test and of the immunization which can be offered to those who show a positive reaction

were minutely explained. Appropriate literature and copies of consent slips were given to the parents of the children of these institutions and on May 6, 1922, the actual work was begun.

Naturally the work began on a small scale, but the numbers have increased in a very gratifying manner. To date the work accomplished is as follows:

	Schick Test.	Read- ings.
St. Gregory's School.....	385	385
St. Vincent's School.....	178	176
East Boston Health Unit.....	1,263	1,181
U. S. Veterans' Hospital No. 41....	342	334
Children's Hospital.....	55	36
Massachusetts General Hospital...	106	44
Carney Hospital.....	6,732	5,811
Long Island Hospital.....	106	101
Blossom Street Health Unit.....	1,596	1,377
Daly Industrial School.....	71	71
St. Anthony's School.....	310	309
St. John's School.....	322	322
House of the Angel Guardian.....	674	633
Little Wanderers' Home.....	78	73
Italian Home.....	37	27
New England Peabody Home.....	47	47
Martin Luther Home.....	27	27
Assumption School.....	402	365
St. Mary's School (East Boston)...	490	464
Sacred Heart School.....	556	489
Fittin School.....	486	466
Totals.....	14,256	12,758

The difference between the number of Schick Tests and the number of readings are the absentees. Therefore 90 per cent. of the Schick Tests done by this department have been read.

The various percentages of the reactions are as follows:

Positive	43% (5,276)
Pos. Comb.	6% (690)
Negative	40% (5,135)
Pseudo	11% (1,657)

The positive reactors, 5,276, and the positive combined reactors, 690, totalling 5,966, make up the susceptibles to Diphtheria. Of these reactors approximately 80% have been given the first injection; 65% have been given the second injection; and 57% have been given the third injection, which is generally the required amount for full immunization.

This department has already made arrangements to Schick and immunize 27,000 Parochial School children in the City of Boston and we hope that our results obtainable at these schools will compare favorably with the work done as noted above.

The Schick Toxin-Antitoxin activities are under the direction of the Epidemiologist of this department, Dr. John A. Ceconi. The staff at the beginning consisted of two, one doctor and one nurse, but the work has progressed so rapidly that the Health Commissioner has seen fit to increase the number to nine—six physicians and three nurses, which constitutes the present working personnel. Three more nurses and two more doctors will shortly be added to the present force.

ESSEX NORTH DISTRICT MEDICAL SOCIETY.

THE quarterly meeting of the Society will be held at the State Infirmary, Tewksbury, Mass. (telephone, Lowell 160), upon invitation of the superintendent, J. H. Nichols, M.D., Wednesday, October 18, 1922, at 2 P. M. sharp, and will be a joint meeting with these district societies: Essex South, Middlesex East and Middlesex North.

From 2 to 3.30 P. M. the Infirmary will be inspected and interesting cases will be shown under the supervision of the superintendent and assistants.

At 3.30 the following will speak:

1. J. W. Bartol, M.D., of Boston, president of the Massachusetts Medical Society (15 minutes).

2. C. F. Painter, M.D., of Boston, chairman Standing Committee on Medical Education and Medical Diplomas, upon "The Importance of the Proper Selection of Members of the State Board of Registration in Medicine" (15 minutes).

3. J. S. Stone, M.D., of Boston, secretary Standing Committee on State and National Legislation, upon "Legislative Matters Concerning Hospitals" (15 minutes).

4. W. P. Bowers, M.D., of Clinton, editor of the BOSTON MEDICAL AND SURGICAL JOURNAL (15 minutes).

5. H. Jackson, M.D., of Boston, upon "Diseases of the Myocardium" (20 minutes).

6. J. H. Nichols, M.D., of Tewksbury. "The State Infirmary" (15 minutes).

All the above topics are open to discussion (3 minutes each).

At the close of the speaking, not later than 5.30, dinner will be served.

The next meeting of the censors will be held at Hotel Bartlett, Haverhill (telephone, 8710), Thursday, November 2, at 2 P. M. sharp.

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.

THE first meeting since May of the Norfolk South District Medical Society was held Thursday, October 5, 1922, at the Norfolk County Hospital, Braintree, Mass., and the Society had as its guest President Bartol of the parent society, who talked on the doings of the Council at their last meeting in Boston. All members present were conducted through the hospital by Dr. Roach, the superintendent, who explained the entire workings of the institution. Dr. N. R. Pillsbury read a very good paper on the "Results in Treatment of Advanced Pulmonary Tuberculosis." Statistics taken from all patients admitted to the hospital since its opening were used in the paper. The meetings of this Society are held the first Thursday of the month at the United States Hotel, Boston.

PHYSICAL EXAMINATION OF SCHOOL CHILDREN.

In an article published in the Health Journal of the Massachusetts Tuberculosis League Dr. William H. Devine reports that practically all attendants in the Boston Public Schools have submitted to an annual examination. Reference to the law is made as follows:

"The law requires that children shall be separately and carefully examined every school year, and a written notice of any defect or disability sent to the parent or guardian. (Physicians are required to complete these physical examinations before December first of each year.) The wisdom of this rule is obvious; it admits of prompt and timely treatment.

"All children are weighed and measured at time of physical examination and record of weight and height is made on physical examination record card. Outside wraps, such as coats, sweaters, etc., are removed before weighing. Children from the kindergarten to the sixth grade, inclusive, are stripped to the waist for physical examination.

"In addition to the regular routine examination the school physician examines as often as necessary all children who require it.

"Physical examinations of girls in High, Latin, and Normal schools are made in the presence of the instructor of physical training, the teacher or the matron. Physical examinations of pupils assigned to open-air classes are made in September and re-examination in February.

"A sealed notification of any defect or disability requiring treatment is sent to the parent or guardian of child.

"Special physical examination of candidates for the Normal School are made by the school physicians in January and June preceding graduation from High School. Report on each examination is sent to the Director of Medical Inspection. Applicants for admission to Normal School may be rejected for any of the following causes:

"Communicable diseases, *e.g.*, tuberculosis

"Defective vision

"Defective hearing

"Epilepsy

"Chorea

"Chronic bronchitis or asthma

"Affections that are:

"(a) unsightly, *e.g.*, chronic skin disease

"(b) offensive in nature, *e.g.*, ozena and allied diseases."

It would be interesting to know how the examination of school children throughout the State compares with the work done in Boston.

UNITED STATES CIVIL SERVICE COMMISSION.

Reports that the entire increase in the number of employees in the Federal executive civil

service, both in the District of Columbia and outside, for the period of six years from June 30, 1916, to June 30, 1922, was 122,806.

Obituary.

FRANK FREMONT-SMITH, M. D.

Word has come of the sudden death in Bangor, Me., of Frank Fremont-Smith, September 29, 1922, at the age of sixty-six. He had been suffering with melancholia, a disease which had affected him some five years ago, and he took his life by cutting his throat.

He was a graduate of the Medical Department of the University of Pennsylvania in 1883, had practiced in Philadelphia and, for the last three years in Boston, having also a summer practice at Bar Harbor and a winter practice in Florida, where he has a residence at Winter Park. He resigned from the Massachusetts Medical Society, February 1, 1922, but retained membership in the Maine Medical Association and in the American Medical Association. He is survived by his widow, a daughter and two sons, who are Dr. Maurice and Dr. Frank Fremont-Smith, Jr., of Boston, both fellows of the Massachusetts Medical Society.

RECENT DEATH.

DR. WILLIAM ANDREW DOLAN died suddenly at his home in Fall River, October 1, 1922, aged 64.

The Massachusetts Medical Society.

MEMBERSHIP CHANGES FOR THE MONTH OF SEPTEMBER, 1922.

OFFICIAL LIST (8TH).

Compiled by the Secretary.

ALPHABETICAL LIST.

Adler, Stuart W., from Boston to Winona, Wisconsin. Winona Clinic.
Alden, Carmi Rupert, Boston, from 645 Beacon to 497 Beacon St.
Barnum, Francis G., Brookline, 85 Abbotsford Road.
Bill, J. Penteado, Wayland, office Boston, now 144 Commonwealth Ave.
Blake, Allen H., West Somerville, from 117 Elm St. to 81 College Ave.
Blanchard, Randall H., Pittsfield, office now 18 Bank Row.
Cheever, Austin W., Boston, office now 270 Commonwealth Ave.
Cheley, Glen E., from Roxbury to Denver, Colo., 538 Imperial Bldg.
Cohen, Samuel Adams, from Boston (Suffolk) to Roxbury (Norfolk), office Boston, 483 Beacon St.
Crittenden, Samuel W., from Woburn to Wakefield, 41 Fairmount Ave.
Cunningham, Thomas D., Denver, Colo., now 1522 Lafayette St.
Dunbar, Francis H., Mansfield, Boston, office now 416 Huntington Ave.
Dunham, Henry B., from Belleville to Verona, N. J., Essex Mountain Sanatorium.
Dunn, William A., Boston, from 154 Richmond St. to 39 Somerset St.

Ellis, Frederic Warren, from Monson (Hampden) to Newton Centre (Middlesex South), 1175 Center St.
Ernst, Harold Clarence, died at Plymouth, September 7, 1922, aged 65.
Fitzgerald, John Joseph, Haverhill, now 83 Emerson St.
Fremont-Smith, Frank, Jr., from Roxbury (Norfolk) to Boston (Suffolk), 265 Beacon St.
Granger, Frank B., from Boston (Suffolk) to Allston (Middlesex South), office Boston, 520 Beacon St.
Greene, Ransom A., from Boston (Suffolk) to Taunton (Bristol North), Taunton State Hospital.
Greenwood, Allen, Wellesley Hills, office Boston, now 82 Commonwealth Ave.
Howard, Margaret E. P., Reading, 122 Summer St.
Howe, Joseph D., Pittsfield, office now 409 Berkshire Life Bldg.
Keenan, Herbert John, died at South Boston, September 7, 1922, aged 51.
Kleinert, Margaret Noyes, now Boston, 82 Commonwealth Ave.
Koppel, William, Boston, from 82 E. Concord St. to 24 Hancock St.
Korb, Harry, from Roxbury (Norfolk) to New York City (non-resident), U. S. Coastguard Cutter Seneca.
Levine, Samuel A., Brookline, office now Boston, 270 Commonwealth Ave.
Liebman, William, from Hartford, Conn., to Brookline, office Boston, 636 Beacon St.
Little, Abby Noyes, from Syria to Newburyport, 22 Essex St.
Looney, Joseph M., from Somerville (Middlesex South) to Towson, Md., Sheppard & Enoch Pratt Hospital (non-resident list).
Parker, Frederick D., from Brookline (Norfolk) to Chelsea (Suffolk), Soldiers' Home.
Perkins, Franklin H., from Wrentham (Norfolk) to Newton (Middlesex South), 16 Summit St.
Prenn, Joseph, from Worcester (Worcester) to Brookline (Norfolk), office Boston, 536 Commonwealth Ave.
Reid, William D., Boston, now 270 Commonwealth Ave.
Reynolds, Henry Vose, died at Brookline, September 21, 1922, aged 61.
St. Marie, Philippe, Pittsfield, office now 312 North St.
Sever, James Warren, Cambridge, office Boston, now 321 Dartmouth St.
Shattuck, George B., Boston, from 183 to 68 Beacon St.
Slattery, John Richard, died at Anburndale September 11, 1922, aged 55.
Sprague, Russell Bradford, from Suffolk to Barnstable, Yarmouthport, Medical Director Cape Cod Health Bureau.
Story, Theodore L., from Allston to Brighton, 141 Sutherland Road.
Taylor, Erwin H., Pittsfield, office now Agricultural Bank Annex.
Thomes, John B., Pittsfield, office now 18 Bank Row.
Townsend, Charles W., Boston, now 98 Pinckney St.
Walker, Waldo W., West Somerville, office Boston, now 270 Commonwealth Ave.
Webber, Wolfert G., from Brookline (Norfolk) to Newton Highlands (Middlesex South), office Boston, 546 State House.
Weinburg, Philip B., Brockton, now 37 West Elm St.
Weissman, Ruth, from Roxbury to Dorchester, 1027 Blue Hill Avenue.
Woodward, William C., from Brighton to Chicago, Ill., 1535 E. 60th St.

Changes of address should be sent to the Secretary, Dr. Walter L. Burrage, 42 Eliot Street, Jamaica Plain.

Correspondence.

THE TREATMENT OF TUBERCULOSIS.

Mr. Editor:

A prominent physician has written lately that he has "no confidence whatever in any drug treatment of tuberculosis except for the relief of symptoms."

This, to me, is a regrettable statement, and one with which I am not in accord. I am confident, now more than ever, that beechwood creosote treatment, properly given, by the mouth and by inhalation, is curative.

The great difficulty today with many practitioners, is that they do not attend sufficiently, in medication, to facts, which may appear of small importance and yet are often primary. It is essential always, with our most efficient remedies, that they should be given with care and intelligence, back up with experience and, maybe, repeated trial. Creosote has been wrongly given in very many cases. The dose was often too large and not suitably combined. In the majority of cases, it should only be given in relatively small doses, repeated more or less frequently and continued a long while, with occasional interruptions.

If inhalations of creosote are used, they also should be given with much care and attention to little details. Without these, they are not really useful and frequently given up because of the lack of knowledge on the part of the physician. The patient, if improperly directed and guided, will very soon lose faith in the remedy, become discouraged and abandon a very useful treatment, when it is properly carried out. To those who wish to know my views, corroborated by wide experience, I refer them to *Medical Record*, Feb. 27, 1892, and especially to *Medical Record*, Jan. 24, 1920, where they will find not a little that is worth while about "The inhalation treatment in pulmonary tuberculosis."

BEVERLEY ROBINSON, M.D. New York.

The BOSTON MEDICAL AND SURGICAL JOURNAL, Sept. 28, 1922, page 400.

CHRISTUS MEDICUS.

Onset, Mass., Sept. 30, 1922.

Mr. Editor:

Your editorial (Sept. 28, p. 485, "The Practice of Medicine by the Clergy") seems to refer to a recent revival, by a Christian, Sec. of what the Church Universal tried thoroughly long ago and abandoned as not within the scope of any powers granted to it. Cumulative evidence of this former practice is given by a late discovery of the earliest inscription yet found invoking *Christus Medicus*. This came to light in a second Pompeii as to preservation, etc.: in Timagid in Algeria south of Constantine. This city was one of the wonderful African copies of Rome which the French (and the Italians also) have been exploring and describing. This inscription (of about 350 A.D.) is fully explained in a report printed in the *Comptes Rendus de l'Académie des Inscriptions et Belles Lettres de l'Institut de France*, for 1921; citation I unfortunately cannot give, being convalescent from glaucoma—operations and away from books and my notes. Christ was then regarded as a healer of physical and psychic ills, evidence of which can be found also in the writings of the African Church-Fathers which are late enough to be familiar to the above mentioned sect which is known to be little interested in more primitive Christianity. My intended article on the whole subject must be postponed indefinitely, and this letter is merely to call attention to the above report, which can be found in any great library and which will give enough for any ordinary inquirer.

(MR.) ALFRED ELA.

NOTICE.

The Suffolk District meeting, Oct. 18th, is open to all physicians who would like to hear Dr. John O. Polak, Professor of Obstetrics and Gynecology, Long Island College Hospital.

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District—Hyanis—November 3, 1922, February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol North, Bristol South, Barnstable and Plymouth Districts will hold joint meetings sometime this fall.

Bristol South District—Fall River—November 2, 1922, May 3, 1923.

Essex North District—Haverhill, (Semi-Annual Meeting)—Jan. 3, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Essex North, Essex South, Middlesex North and Middlesex South Districts will hold joint meetings October 18. Place undecided.

Hampden Districts—With Hampshire District in Holyoke. Regular meeting in October.

Suffolk District—Stated Meeting, October 18, 1922. Combined meeting of Boston Medical Library and Suffolk District, November 22, 1922; December 27, 1922; January 31, 1923; February 28, 1923; March 28, 1923; Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meet the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District—Meetings Wednesday, October 25, 1922; Wednesday, January 31, 1923.

Worcester District—Union Meeting with the Worcester North District in Fitchburg, Oct. 24.

Worcester District meetings in Worcester, Nov. 8, Dec. 13, 1922, Jan. 10, Feb. 14, March 14, April 11 and May 9, 1923, the last named date being the annual meeting.

The four Western Districts will hold a joint meeting at the Hotel Kimball in Springfield on Oct. 19, 1922.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

Plans are being made for a joint meeting of the Worcester and Worcester North districts in October.

The Fifty-First Annual Meeting of the American Public Health Association will be held at Cleveland, Ohio, October 16-19, 1922. Headquarters will be at Hotel Stabler.

The American Association of Oral and Plastic Surgeons will hold their annual meeting at the Medical Library, Boston, on October 20th and 21st.

Clinical Congress of the American College of Surgeons will be held in Boston, Mass., on October 23-27, 1922, Franklin H. Martin, Chicago, Director-General.

Massachusetts Association of Boards of Health, October 26, 1922, Worcester, Mass., W. H. Allen, Mansfield, Mass., Secretary.

New York and New England Association Railway Surgeons, 32nd Annual Meeting at New York City, October 28, 1922, Donald Guthrie, Sayre, Pa., Secretary.

November, 1922. Massachusetts Society of Examining Physicians, (Date and place of meeting undecided), Hilbert F. Day, Secretary. National Cancer Week, November 12 to 18.

December, 1922. New England Dermatological Society Meeting, Wednesday, December 13, 1922, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary.

January, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston, W. H. Allen, Mansfield, Mass., Secretary.

February, 1923. New England Dermatological Society Meeting, February 14, 1923, at 3.30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

March, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary.

April, 1923. New England Dermatological Society Meeting, April 11, 1923, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston, W. H. Allen, Mansfield, Mass., Secretary.

May, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided). American Pediatric Society Meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind., H. C. Carpenter, Secretary.

June, 1923. American Medical Association, San Francisco, June 25-29, 1923, Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923. Massachusetts Association of Boards of Health, July 26, Nantasket, W. H. Allen, Mansfield, Mass., Secretary.

*Deceased Sept. 2, 1922.

The Boston Medical and Surgical Journal

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New England Hospital Association.

ANNUAL MEETING WEDNESDAY, MAY 17, 1922, AT BOSTON MEDICAL LIBRARY.

The meeting was called to order at 10:30 A.M., the President, Dr. Joseph B. Howland, presided.

DR. HOWLAND: It is not my intention to open this convention with a presidential address. We will start with the informal method of meeting from the very beginning, and I should like to say that I think that if this Association is to be a success, it will be because each and all of you take part in it. We plan, at some part of each session,—at the latter part of this one, the one this afternoon, and the one tomorrow morning,—to have a question-box. It was the feeling of the trustees that if this Association was to serve the hospitals of New England to its fullest extent, it would be very largely by giving an opportunity to any of you to ask questions, to be answered by those who have had experiences which enable them to answer them. Outside of the door we have placed a question-box, for this afternoon's session. If any of you, between now and the opening of the afternoon session, think of anything you would like to have brought up at our question-box session, I wish you would drop your question in the box. This morning perhaps we shall just ask questions from the

floor, when we have finished the other business of this session.

On the programme as sent you, the paper by Dr. Hersey, scheduled for tomorrow morning, was down as "The Hospital Kitchen." Dr. Hersey is going to talk on "The Hospital Laundry," instead of the kitchen. It was my mistake in having it so placed in the programme. Also, I want to say, referring to the list of hospitals open for inspection tomorrow, that these visits will be quite informal. They are not going to entertain you, but they are going to try to show you what you may want to see. The list is not complete; the New England Hospital for Women has called our attention to the fact that it is not on our list; they want us to say that they will be glad to have visitors. The Eye and Ear Infirmary will also welcome you, though that is not on our list.

I want to call your attention, also, to the fact that at the small table outside of the door, there is a place for registration. We hope that those of you who have not already registered, will register your name and your hospital.

The order of business calls for the reading of the minutes of the previous convention. As this is the first convention, there is nothing to be said on that. The next item of business is "Announcements." The Secretary has no announcements other than those on the programme.

I will ask for the report of the Secretary.
(Report read by Dr. Faxon).

Report of the Treasurer was called for and read.

DR. HOWLAND: Mr. Lee, may I ask that you will get the treasurer's report, and report for the auditing committee later.

The chairman of the membership committee has not arrived; we will have his report later. The chairman of the legislative committee is not present; nor is the chairman of the committee on constitution and rules; so we will proceed with the first paper.

I think we all realize that advances in Electrical Science have been very rapid, and for this reason it seemed very desirable to have a paper on the subject of Modern Hospital Illumination. In asking the speaker of the morning to come, I feel that we are very greatly indebted to him; first, because he is not a member of the Association, and, secondly, because he was due to attend the Convention of Lighting Associations at Atlantic City, which, of course, we all know is a magnet drawing us all very powerfully. He has foregone that convention to come to our convention, and I am sure we are very much indebted to him.—Mr. Alfred J. Hixon, the President of the Hixon Electric Company.

MODERN HOSPITAL ILLUMINATION.

BY ALFRED J. HIXON, PRESIDENT OF THE HIXON ELECTRIC COMPANY.

In addressing you upon the subject of Modern Hospital Illumination, I should wish to correct a possible impression that the laws of illumination were any different in hospitals, than elsewhere. They are not. There are certain specific conditions found in hospitals, which have to be met by special applications, and in so far as these are found exclusively in hospitals they might possibly be called Hospital Illumination. However, Hospital Illumination is no different from other artificial illumination and the best results will be accomplished in every case by a thorough understanding and practical application of the more ordinary conditions and limitations governing lighting. For that reason, I wish first to direct your attention to some of these conditions and will then suggest a few methods of meeting the problems as found in the hospital more specifically.

It is not my intention or desire to attempt to present a learned or technical treatise upon the subject, but merely to point out to you a few simple truths, which may assist you in improving your present lighting systems, and which, if kept in mind, will certainly prevent you from committing many of the common errors with regard to lighting.

The first fact that I want to bring to your attention is that illumination is an exact science. My reason for making this statement is that it is many times looked upon as a "hit or miss" matter, and invariably to the detriment of the results.

The natural laws which apply to illumination, if not fairly thoroughly understood and not properly applied, will defeat any attempt at good lighting. To illustrate, the proper illuminant and proper fixture improperly placed with relation to the area to be illuminated are just as ineffective in the result as would be the installing of an improper illuminant or improper fixture and, by the same token, the improper use of reflectors or glass-ware may defeat an otherwise wholly effective scheme of lighting. It is therefore desirable that in the arrangement of the artificial illumination, first, proper equipment be adopted and, second, that it be properly installed, the object of the comprehensive plan being, maximum amount of useful illumination for the minimum expense, proper consideration to upkeep and operation being given.

The importance of systematic wiring is especially to be noted. By systematic wiring I mean consideration of the proper installation subdivided with a view of maintaining good regulation and sufficient flexibility to enable changes to be made from time to time, without impairing either the efficiency or the safety of the system. Curtailment of outlets and curtailment of switches for the proper control of lights is invariably expensive in the long run and many times defeats the illuminating system, either from a distribution standpoint or by excessive loss caused from overloading. I merely mention this question of wiring in passing so that it may not be overlooked in your minds. It is a matter which should only be considered by an engineer, since it is a highly technical problem, not possible of solution by laymen.

It should be emphasized that low first cost does not necessarily imply efficiency; the question of efficiency hingeing upon the combination of first cost plus operating expense and upkeep always measured in terms of useful lighting.

The second fact which I wish to bring to your attention is one which I am constrained to believe is a source of more trouble in existing systems than any other one, namely, the disposition on most people's part to perpetuate an existing system, though the same is admittedly in error, the practice dating back to the advent of the incandescent lamp, of substituting one form of illumination for another without due consideration for the improved characteristics of the new illuminant. In the earlier forms of the incandescent lamp this was not so pronounced, but since the advent of the tungsten lamp with its greatly improved efficiency this has become a very serious error. Putting modern lamps in antiquated lighting fixtures and expecting good modern lighting from them, is a fallacy too evident to need more than passing comment. The practice of installing larger lamps in fixtures than the fixtures are designed for, with a view of obtaining greater intensity and better illumination, is equally fallacious.

The third fact that I wish to direct your at-

tion to, is the great improvement made in the type and efficiency of the modern incandescent lamp, which has made possible the entire revision of our ideas and practices with regard to artificial illumination. The early incandescent lamp had an efficiency, and I merely give these figures for comparative purposes, of approximately 4 watts per candle power. The modern so-called Type "C" incandescent lamp has an efficiency of approximately .75 of a watt per candle power, which is something over 5 times as efficient as the original lamp. This, combined with the constantly lowering cost of electricity, especially where bought at wholesale rates, brings the quantity of illumination available at reasonable expense to a point where we have abandoned the idea of specifically lighting certain objects or comparatively small areas, turning to general illumination meaning, filling the area lighted full of light, so that almost any ordinary process may be carried on anywhere in the area without particular regard to the location of the illuminant. This radical change in the approach to artificial lighting has necessitated radical revisions in the ways of measuring illumination and has caused the abandonment of the old candle power ratings and the adoption of the rating of all lamps on the basis of the current consumed and measuring the efficiency of all artificial illumination on the basis of its intensity or, in other words, in foot candles per given area.

The next important fact that I wish to bring to your attention in connection with artificial illumination, is that all illumination is measured by comparison, and I wish to warn you at once against the use of the human eye in making this comparison. The human eye is not a good photometer or foot-candle meter. The reason it is not a good measurer of comparative values in illumination is due to its high degree of what is known as accommodation, and I might point out to you that a large majority of all our so-called eye-strain produced by illumination is produced by this same property of accommodation on the part of the eye and this is due to one of the most common faults in illumination, namely, too great a contrast or too great a degree of difference in light intensity occurring within a comparatively small area or what might be more properly termed, the working area of the eye.

This may be caused either by too brilliant an illuminant, improperly placed, or by the use of the wrong type of equipment such as shades and reflectors. We should strive to avoid marked contrasts in illumination and to obtain the most perfect distribution possible.

An eminent authority on illumination, when recently asked what his definition was of a perfect lighting fixture, stated "that it was a fixture which furnished proper illumination without being unduly conspicuous," or, in other words, furnished the illumination without so great a degree of intrinsic brilliancy as to make itself

objectionable. This, I believe, is the object sought by most of our modern lighting engineers, and most of the modern illuminating units that are worthy of consideration embody these features in a more or less successful manner; it therefore remains for the engineer to give due consideration to the nature of the area to be illuminated and the use to which this area is to be put, to select and install the proper lighting.

I wish to impress upon you that all artificial illumination should be measured in foot candles of useful light at the working plane and not in fixture ratings, and that all fixtures and equipment should be purchased rather with the thought of economy of operation than economy of first cost, since cheap glass-ware may defeat a lighting system to such an extent that the original cost of the fixtures may be consumed many times in the coal pile and thereby prove very expensive.

For the purpose of measuring foot candles of useful light in any given area, which, really in the last analysis, is the measuring of the value received for the money spent, I wish to call your attention to this little instrument known as the Foot Candle Meter, which is one of our more modern products and which I commend to you for its simplicity, its accuracy and its freedom from any technicalities. It can be used by anyone without the slightest technical knowledge and with the most effective results. Every institution which considers its running expense and wishes to enhance its lighting efficiency should own one of these little instruments, and the executives of the institution should satisfy themselves by its use, that they are getting what is best for them in the way of artificial illumination. I venture to say that the general and intelligent use of this instrument, combined with the little expert advice as to improving methods and equipment, will effect a marked saving in 90% of the hospitals of this country.

To sum up the foregoing rather brief résumé of what might be called the cardinal points of artificial illumination:—

1. Lighting is an exact science.
2. Efficient lighting requires coördination of equipment, lamps, fixtures, and wiring.
3. Modern lighting is done largely by general illumination.
4. The two prime factors to be considered in lighting any given area are, intrinsic brilliancy of the illuminant and equal distribution in the area illuminated.
5. Measure artificial illumination in terms of useful light rather than in fixture or lamp ratings.

In the illumination of the sick-room, whether it be the open ward or the private room, up to a certain hour in the evening when the patients are supposed to go to sleep, we should closely simulate the home under normal conditions. This should be a cheerful illumination which requires a brilliancy of from 3 to 5 foot candles.

It is essential that this illumination should be by means of a type of illuminant in which the intrinsic brilliancy, or contrast, should be very low owing to the fact that the patient is in a reclining position and therefore forced to face the general direction of illumination. This fact does not justify the placing of the illumination in abnormal positions such as from the floor, but merely means that the illumination must be sufficiently distributed to avoid high brilliancy or marked contrast.

After the hour in the evening when the principal illumination is extinguished and the patients are supposed to go to sleep, the rooms must be provided with sufficient lighting to enable the nurse to make her rounds without inconvenience or undue disturbance. This illumination must not be sufficient to wake the sleeping patients and should not exceed $\frac{1}{2}$ of 1 foot candle. Since unusual lights have a marked effect in waking the patients, it is found desirable to have this second source of illumination in the same location as the principal illumination for the room, this also giving the desired distribution.

We have worked out a fixture for this purpose to which I wish to direct your attention. We do not claim that this is perfect nor that it is the only solution, but we feel that it is one reasonable solution of this very vital problem. I am quite certain that any solutions which depart from the elemental essentials of good lighting to accomplish these results are wrong.

Bed-side lamps of normal brilliancy, no matter how shaded or hooded, do not serve the required purpose because of two very prominent reasons: One, they will not sufficiently illuminate the room to give the nurse convenient freedom of action; two, they produce the contrast that should be avoided. Lights in the floor and other unusual places are not successful as long as they do not provide two intensities of illumination.

A special application of great importance in a hospital is the illumination of the operating-room. I would call to your attention the large majority of forms of illumination commonly used which center the light upon the object. This is wrong. The problem in the operating-room is the same problem it is elsewhere; namely, filling the area full of useful light, so uniformly distributed that the eye will not be called upon to accommodate unduly and the hand and the instrument will not cast prohibitive shadows. This can be accomplished merely by installing a suitable type and arrangement of ceiling fixtures, taking into consideration the necessity for a much higher degree of intensity and better distribution of illumination than is required elsewhere, from 25 to 50 foot candles over the entire working area.

There are other minor special applications for hospital illumination, but the two that I have here pointed out are, I find, the principal deviations which might be directly termed Hospital Illumination. In the remainder of the hospital,

the same rules for good lighting should be applied as are applied in an office building, bank, factory or any other place where the people are doing more or less confining work and should be applied to the types of utility that are found in the various parts of the institution. The question as to proper amount or degree of illumination is, to some extent, fairly well established, such as where clerical work is being done the light on the lighting plane should have an intensity of from 5 to 8 foot candles. In dining-rooms, kitchens and other places where the work is less confining this illumination can be cut down to 4 or 5 foot candles.

It is well, as a general principle, to avoid so far as possible specific lighting such as reading lamps, desk lamps or lamps directly over machines or tables, general illumination being much safer and much better for the person doing the work, as well as producing much better work.

Electric lighting fixtures have been made a subject of special consideration for hospitals to such an extent that it has produced in the minds of many people the idea that there is something different about hospital lighting and hospital fixtures than about the ordinary commercial lighting and commercial fixtures. This, I believe, is an error, or at least a misconception. I realize the necessity in hospitals of having everything free from dirt and, to accomplish this end, easily cleanable. I am also of the opinion that all electric fixtures, whether in hospitals or elsewhere, should be of such rugged and substantial construction that they will be fairly free from unreasonable depreciation. In the attempt, however, to accomplish these two very practical requirements, nothing should be done which decaats or interferes with the principles of lighting. A good illustration of what I have in mind is the use of clear cover-glasses; the assumption on the part of most people is that this does not interfere with the lighting. It would probably be considerable of a shock to many of you to know that as high as 25% of the light is in some cases absorbed by this cover-glass, where the glass is of cheap or inefficient make. I could go on indefinitely pointing out similar conditions and failures of equipment due to one misconception or another, but this will serve to illustrate my point.

DISCUSSION ON MR. HIXON'S PAPER.

DR. HOWLAND: I think you will recognize that Mr. Hixon has gone to no little trouble in bringing his own office force here and setting up this installation, because he is very much interested in efficient lighting problems. I knew of his intense interest, and that is why I asked him to give us this most valuable paper.

We are very much accustomed to the remark, that it is not the first cost of an automobile, but the cost of upkeep that counts; now I think, if we have taken home the lessons Mr. Hixon has given us today, we recognize that we have a very

similar situation in our hospitals in regard to lighting. I doubt if there is one out of ten of our hospitals that doesn't come into this class, in that we are running along with very inefficient, out-of-date lighting apparatus, and are constantly spending money to bring it up to standard. We know, if we have to spend money on new lamps or fixtures, that it is going to cost something, but we do not recognize it clearly when it comes in the coal bill.

Mr. Hixon calls attention to the modern type of lamp; the so-called nitrogen lamp is five times as efficient as the old carbon lamp, and three times as efficient as the lamps around the room, which most of us use to a very considerable extent.

MR. STEVENS: I am extremely interested in Mr. Hixon's talk. It is very enlightening; I had almost said very illuminating. It has given me many good suggestions. There are one or two things which in my own practice I have brought out in lighting. We always try to get our inspiration wherever we can, and in going through one of the larger hospitals in Europe, I noticed that they had the double lighting system Mr. Hixon speaks of, the intense lighting for illumination of the room, and the night light; and the night light I noticed was made less actinic by being dipped in blue, giving a less trying light, a bluish light. I have since used that a number of times, with very good effect. Dipping the bulbs in amber gives even a softer light. This is just a suggestion that I have worked out.

Another thing that occurred to me, which Mr. Hixon did not mention, is the matter of night lighting of the corridors. I have met with considerable reaction from the fact that corridor lights,—which we must have,—if the doors of the patients' rooms happen to be open, or there are transoms, are rather trying to the patients' eyes; and to overcome that I have placed lights low down in the wall. These lights give sufficient illumination for going about the corridors, and do not interfere with the patients' comfort. The same thing applies in the operating-rooms. While we must have the intense light for certain times, there are other times, such as when the nurses are cleaning up the room, that the intense light is not needed; and side lights of a nature similar to those placed in the corridors have been placed in operating-rooms to advantage.

MR. HIXON: Dipping the lamps in blue does not reduce their actinism; it increases it, because the blue filters out red rays. A blue glass lamp, easily obtainable anywhere, is made for the purpose of taking out the red rays. A blue light is much easier on the eyes than a red light or a white light. The non-actinic ray is the ray which has the weakening and disturbing effect. Amber light is the proper light. On any of these

fixtures here, you find an amber light. There are various possibilities; but the only really satisfactory way we have ever found of accomplishing this purpose is by having two different intensities. On the question of lighting corridors, we simply have taken this position,—if the corridor is lighted by clear glass in the doors of rooms, or by transoms, then the same thing applies to the corridor that applies to the room, and you use the same type of fixtures, or something akin to it. The question of having lights in corridors specially placed in the walls, is about the same as using lights in floors, and I should say that the best statement to illustrate the fallacy of those things,—though I say it reservedly,—is to note the fact that natural illumination comes, ordinarily, from above, being reflected by the ceiling. You know that this room is not well-lighted, partly because the fixtures here are not right, but mainly because the nature of the ceiling is such that it cannot be well lighted. The only kind of fixture that would light this room well would be a fixture that had a reflector over it. Normal light, natural illumination, comes from above; it comes in the windows, and is reflected from above. When you put lights below, you produce sharp shadows, no matter what intensity it is, which gives a marked contrast between the intensity of light at one point and at another point, and these contrasts are what give most of the trouble. You want even distribution; I think of the many things necessary to produce good light, distribution is the main thing. Natural illumination is the best illustration of distribution, and the reason is because the sun is so far away. If it were possible in artificial lighting to place the illuminant at great distance from the surface to be illuminated, then we should get distribution. While I do not say there is no way of working out the side light proposition, I am of the opinion that the tendency should be away from these things, rather than towards them. The same thing applies in regard to the operating-room. There should be lights of greater and lights of less intensity. What I have tried to fix in your mind is that the illumination should be distributed, and sharp contrasts avoided. You should have absolutely uniform illumination over the entire working area; not only on the patient who is being operated on, but on everything in the room.

At the present time, we can produce lamps known as daylight lamps, and we are proposing to install in one or two hospitals an experimental system, in the operating-rooms, of the reproduction of daylight intensities; that is, the reproduction of the intensity of daylight, of the distribution of daylight, and of the color of daylight. You have all, probably, experienced the difference between artificial daylight and daylight. Under artificial daylight, the colors seem to be sometimes brown and sometimes blue; they change like a kaleidoscope. Light can be pro-

duced which will supersede artificial light, and give the same intensity and the same quality as daylight, and that is what we are attempting to do.

Dr. Carrell of the Rockefeller Institute has installed a system of daylight lamps. He had at first a combination of skylights and these lamps; now he keeps the skylights closed and works entirely by the lamps. He says illumination by the lamps is so much steadier, and so much more uniform that he prefers it to daylight; because when he uses daylight, he gets in the middle of an operation, when perhaps a cloud goes over the sun, and the intensity of the light changes. So he prefers artificial light. When we can reproduce daylight in color and with sufficient intensity, and sufficient distribution, we shall find artificial light superseding daylight for these purposes.

An explanation of the color scheme of Dr. Carrell was asked for.

MR. HIXON: Dr. Carrell is very much opposed to all whites. His room is done in dark lead color; the ceiling is not so dark as the walls; the floor is quite dark. In other words, the room is such that the walls do not reflect. That is one of the things that cause much trouble. Light goes to the wall and back to the object, and you get different angles, which cause reflections and which obstruct vision. Dr. Carrell does away with that by having everything dark color. His clothes are all dark colored. None of his nurses or attendants dresses in white; so that there is no reflection whatever. It is all absorption, rather than reflection. His lighting scheme consists of groups of lamps within four or five feet of each other, so arranged that the light comes from so many sources that there are no shadows. The room is almost entirely free from shadows. There are no cross lights, because there is no reflection. Doing away with the skylight, he has uniformity of illumination at all times.

DR. BAKER of Fitchburg: What do you consider the best color for the walls of an operating-room?

MR. HIXON: I hesitate to make an absolute statement on that matter. I don't believe any walls in any hospital should ever be painted white or any of the very light tints. That has been done simply to conserve a meagre supply of illumination, and it has produced glare and many trying effects. In an operating-room, I don't know whether I would go as far as Dr. Carrell does, to say that the room should be always like a dungeon. I think it should be a great way from light colors,—surely not white. For the conservation of light, white is the best, a non-absorbing white.

DR. BAKER: As a lighting engineer, what color would you put on the walls of an operating-room?

MR. HIXON: Light gray,—or perhaps not a light gray, but a quite pronounced gray; with the ceiling about the same, and the floor somewhat darker.

DR. BAKER: What size candle meter should the ordinary living room register in order to be well lighted?

MR. HIXON: A room to be cheerfully lighted should have from 3 to 5-foot candles, depending upon the surroundings, such as the color of the woodwork, the painting, hangings, the amount of them, and so on. A very dark room should have as much as five; a lighter one, with lesser hangings, may be equally well illuminated with 3-foot candles. For a well-lighted room 3 to 5-foot candles are required. If it is much below that, you get eye-strain from the attempt to see; there is an excessive accommodation; or if it is much above that, there will be eye-strain, because of the relation between the minimum and the maximum light and from the nature of the light.

Q. In a single bedroom, private room, where should the electric lighting fixture be placed?

MR. HIXON: The fixture should always be placed in the ceiling. It is impossible to get proper distribution from a fixture placed in the side wall.

DR. PETERS, Rhode Island Hospital: What is the best way to illuminate an operating-room—from a special hanging lantern and reflector, or lights around the edge of the ceiling, or from lights over glass ceilings, or from several openings in the ceiling?

MR. HIXON: That depends somewhat upon the nature of the room, and also upon the height of the ceiling. Taking a room of average size, with a full-size operating table, and the usual number of surrounding tables, and the usual number of people working, I should say that the best method of illumination would be six or eight fixtures hanging from the ceiling; depending somewhat on the shape of the room. Reflectors should not be used. They project light, and any attempt to project light kills distribution, and whatever kills distribution produces sharp shadows, which defeats illumination. You want to control the light and distribute it, so that the light in one place is as great as in another. The nature of the light should be such that it will work the same as daylight, and produce the same color reaction as daylight, for the reason that the eye normally works under daylight more than under artificial light. If you can simulate daylight, you get the most efficient condition, and that is what you should do. You do not want any reflectors, for anything that tends to project light is bad. You want something that distributes it, and just simply directs it, and conserves it, to the best advantage.

Dr. FAXON, Massachusetts General: The problem of lighting desks in an office room, either in the superintendent's office, or the clerks' office, comes up frequently,—should that be done from an overhead fixture, or from a desk lamp?

Mr. HIXON: In answering that question, I seem to have to qualify my other statements. If you have a room that is strictly an office room, a room where there are two or three persons working,—say a room 15 feet square with a 10-foot ceiling,—the most efficient and the best way is to fill the room full of light by illumination from the ceiling. In other words, simulate, as well as possible, daylight conditions. But I know a number of cases where a desk is placed in a large entrance rotunda, and where the total illumination is not sufficient. Under those conditions, the best thing to do is to have a desk light of special illumination. But as far as possible, avoid desk lights, or the lighting of specific areas. In insurance offices a large number of clerks are usually employed: sometimes hundreds work in one room. A few years ago, it was a quite common practice to have a light on every desk, and anyone who didn't have one felt slighted. When general illumination from the ceiling was put in, they were very reluctant to give up the desk lights, the individual illumination. It took quite a while to realize that those desk lights were very disturbing to the eye-sight. Most eye-strain comes from lack of uniformity, from poor distribution. If you get good distribution over the working area, you are saved from eye-strain. There are specific cases where you might want a desk fixture; but in the usual case, general illumination makes the room more cheerful, produces better work, conserves the health and eye-sight of the person doing the work.

Q. I have heard it stated that one insurance company that installed the system you speak of, later on found they were having difficulty with eye-strain: do you know about it?

Mr. HIXON: I will say this, that this whole matter of general illumination is only just in its beginning. Some of the earlier attempts were defeated, some because the illumination was not sufficient,—and just the condition you speak of took place. Other cases were defeated because the wrong fixture was used; in other cases the fixture was right, but the distribution was wrong—wrong arrangements of fixtures. What I would say is, that it is perfectly possible to give a room general illumination in such a way that you will practically do away with eye-strain, and increase production. I do not mean that everything that looks like general illumination immediately accomplishes these things.

(At the request of Dr. Hersey, New Haven Hospital, Mr. Hixon demonstrated the difference between carbon light and tungsten light).

Dr. FULLER, Fall River Municipal Hospital: What is the relation between the size of a room and the distance of the fixture from the ceiling?

Mr. HIXON: That depends upon what is known as the working plane. You have first to establish where the working plane is located in the room and what amount of illumination is desired on this plane. The location of the illuminant then depends upon the intensity or size of the lamp. This is restricted only by the possibly intrinsic brilliancy which can be used without producing eye-strain.

Having determined the size of the lamp and the intensity required at the working plane, the location of the lamp depends upon the height of the ceiling, which limits the height of the lamp above the working plane.

When these factors are all taken into consideration the spacings of the fixtures can be worked out exactly, so as to give very nearly uniform illumination. The neglect of any one of these factors in working out this illumination problem will certainly defeat the result, and this is the most common reason for bad lighting and unsatisfactory results.

Dr. HOWLAND: I just want to say that Mr. Hixon has been given an opportunity to put in what he thinks is the right operating-room lighting fixture in a hospital not yet completed, and I hope it will be something that you will be interested to come and see later. I think we have all made mistakes in corridor lights. We have put in glass transoms, and then had to cover the transoms, because the lights disturbed the patients at night, and perhaps we have been tempted to do what Mr. Stevens spoke of,—put bracket lights down below the transoms. One very simple thing to consider is whether you have transoms for light, or for ventilation. If for ventilation, it is very easy to put in something opaque. It is also possible, without going into the matter very deeply, to consider the location of night lamps, and not have them placed opposite the doors of the rooms.

If there are no other questions, I am sure I am speaking for all of us when I say that we appreciate very greatly Mr. Hixon's coming here and giving us so much time and telling us so much.

I did not know just how to plan the programme; I did not know just how much time would be taken with the reports and discussions. So far as the schedule of papers is concerned, we are through for the morning, and I hope now we may have some questions from the floor.

AMBULANCE SERVICE.

Dr. HERSEY: I should like to inquire if any of the hospitals are able to get on without ambulance service by employment of outside agencies to carry patients back and forth.

Dr. BAKER, Fitchburg: We do that. One of the garages maintains a public ambulance, and

they bring in all of our cases. We pay them \$3 for every ward case, and \$5 for every private case. They never send out an ambulance to bring a patient to the hospital until an order is given from the hospital. We get along quite smoothly that way.

Q. How much does it cost a year? *A.* About \$100 to \$125 a month. We average about 100 patients a day. They handle emergency cases, and their service is very satisfactory.

Q. Do you call for private cases? *A.* We do call for private cases and pay the garage.

MR. PORTER, Malden: Why should a hospital provide an ambulance, or when? At what stage in a hospital's development should it provide an ambulance?

DR. DREW, Worcester City Hospital: The Police Department of Worcester provides ambulance service for all the hospitals of Worcester. I don't know that any hospital in Worcester maintains an ambulance service. There are private ambulances, and I think the Police Department charges patients who are admitted to the private ward service, and, possibly, they make a charge for some other patients; but the City Hospital does not collect any fee, nor pay the ambulance people for any work they do. If a ward patient wants to go home, the Police Department takes him home when we request it. Usually they wait until the ambulance has to bring a patient to the hospital, and probably then another patient will want to go home, and is not quite able to go by trolley, and perhaps not able to pay a taxicab.

DR. HOWLAND: Do patients not object to having the police ambulance come to their doors?

DR. DREW: They are so used to seeing the ambulance take patients, they don't object.

MISS METCALF, Lewiston, Maine: In Lewiston the undertakers maintain an ambulance, which is at the service of the public. The hospital I represent serves a community within a radius of 50 miles. It is a very common occurrence for a doctor to ask to have the ambulance at the train to meet a patient. We call the undertaker and engage the ambulance, and the patient pays the bills, which is usually \$3. They also go long distances into the country to get patients, and to take them home. The undertakers have to keep men around for their work, and these men are very expert in moving patients. They are frequently called in accident cases. The charge is \$3 for going to the station; for trips out of town, it varies. With the automobile they furnish a very comfortable bed, which can be hired to send the patient on the train. Many patients come on the Grand Trunk Railroad, from as far as Portland. They furnish a comfortable cot, with a little mattress on it.

MAN. I think, Mr. Chairman, that if people object to having the police ambulance call at their doors, they would object more to having the undertaker call.

MISS METCALF: They use a special ambulance; not the undertaker's wagon.

WOMAN. We use the undertaker's wagon, but it has a red cross conspicuously placed on it.

MISS LEECH, Somerville Hospital: Our Police Court does all of our ambulance work, entirely without charge either to the patient or the hospital. They not only bring and take away the house cases, but patients for x-rays.

DR. FULLER, Fall River Hospital: We have a free ambulance which takes all patients, for x-rays, orthopedics, and so on. The only restriction is that the ambulance does not go outside of city limits.

Q. On what basis do you charge in Lewiston, Miss Metcalf?

MISS METCALF: I don't know how much it is for long trips. It makes some difference if it is in the night, and it also depends on the time of year, the condition of the roads. The average city cost is about \$3.

DR. HERSEY: We maintain our own ambulance, and charge one dollar a mile in one direction.

DR. HOWLAND: The Peter Bent Brigham charges \$1.50 a mile.

DR. J. M. PETERS, Rhode Island Hospital, Providence: Within city limits, we charge \$2 a trip, no matter what the distance, if they are able to pay. Outside the city limits, the minimum charge is \$5, a dollar a mile after they leave the city; that is, if it's a mile out from the city, the charge is \$6.

DR. CANN, Union Hospital, Fall River: We maintain a private ambulance service, and charge \$1.50 within city limits to private and ward patients, and \$1 a mile outside of the city limits, in one direction; we do not charge for the return trip.

REFRIGERATING SYSTEMS.

DR. RICHARDSON, City Hospital, Providence: I should like to ask whether other hospitals have difficulty in maintaining different temperatures in their refrigerating boxes, one box being, say 32°, and another 40°.

DR. FAXON, Massachusetts General: I don't think this will help very much; but a year or two years ago, we installed a new refrigerating system, and following the installation we had a lot of trouble in maintaining temperatures, not only in different boxes, but in the same box. The

trouble was finally traced, and, after many trials, was found to rest mainly with the machinery itself. The installation was not well done. Since those defects have been remedied, we have had no difficulty. So it would seem that the problem came down to a proper engineering plant, and to installation properly placed. Those two factors being settled, it ought to work all right. Our trouble was in the mechanical operation of the plant; that being remedied, it worked all right.

DR. HOWLAND: We found difficulty in the cooling box due to the manner in which the piping was placed. Air-traps had to be put on at the highest part. Otherwise, it didn't circulate well.

DR. RICHARDSON: We had a plant put in just recently. While it works pretty well, it doesn't work exactly as I hoped it would. It was put in by the automatic people, and in their system the automatic arrangements work from a key-box, which is farthest from the machine, and when that box gets to a certain temperature, it starts the machinery. The other boxes must be so bypassed as to coincide with that key-box; that is, if the key-box goes below a certain temperature, it should be maintained by the other boxes through the by-pass. I think we have more or less difficulty.

DR. FAXON: Ours works by the coöperation of the store man, who is in charge of the ice-box, and the engineer. That is the automatic method we pursue. I think it is more trustworthy than yours, Dr. Richardson.

NURSES.

DR. SMITH, Maine General Hospital: At a meeting of the Hospital Round Table last January, I proposed a question which my friend Dr. Peters somewhat flippantly called a conundrum; but I am going to introduce it again today, hoping that with the large experience of those here, I may get some light. The question is this: Can anyone offer a practical solution of the difficulty many of us are having in keeping up our supply of probationer-nurses? If I may be allowed to say just a word,—doubtless many of you will agree with me that for the past few years there has been increasing difficulty in making good our losses by graduation, by an adequate supply of probationers. One reason, I am quite sure, in my own State, is that we have a large number of very small hospitals, running from fifteen to twenty-five beds, and every one of those small hospitals seems to think they must maintain a training school, and a great many young women are directed to them who would otherwise go to the larger general hospitals. Another phase of the question impresses me somewhat. There is not only an increasing difficulty for the hospital training schools to keep up the supply of nurses, but the

supply of those who ought to be utilized for the public is being diminished by the fact that public health work, various philanthropic services, schools, insurance companies, and others are taking graduate nurses out of the field of private work and employing them in semi-public and official positions. It seems to me that is one phase of the question that has not hitherto asserted itself quite as much as at present. We are feeling it in Portland, and probably other parts of Maine, very keenly.

MISS RIDDLE, Newton Hospital: I believe that the training school should, first of all, have something very definite to offer its class of probationers; then, having secured them, the training school should make good, and, having made good from time to time, there will be very little difficulty in securing other probationers. There are a good many young women, more than at any other time in our history, taking up nursing today; but there are so many hospitals, large and small, with training schools, that it seems as if we were really having a great scarcity. The hospitals are feeling the scarcity, not because the number of young women entering schools has decreased, but because the demand has increased. I believe that if the community in which the nurse works gives her a place in the community, and the hospital itself does its part toward the nurse, that will be good advertising, and will secure probationers for the school.

HOSPITAL CHARGES.

MISS ETHEL DOHERTY, Holyoke: I should like to ask what hospitals are doing generally in regard to the charge per week for one week's nursing. Some of the hospitals charge exactly one week; that is, if the patient goes in on Monday at 12 o'clock and goes out on the following Monday, that is one week. We have been in the habit of charging for eight days; having our day end at midnight, and charging a whole day for every day or part of a day; so that a patient coming in on Monday at noon, and going out Monday at noon would be charged for eight days. We are trying to revise that system.

MR. BRAY, Newton Hospital: We had that same problem to meet some little time ago. We charged both for the day the patient came in and the day he went out. Then, later, we made a charge of a double price for the first day: on a private room at the rate of \$5 a day, the charge was \$10 for the first day and \$5 for each succeeding day. In that way we accomplished the same thing as in charging for the first day and the last day full days. But we had trouble with that: the doctors found it difficult to explain why there was a double charge for the first day. And so, for the past two years, we have adopted the plan of charging for a single day, but making the first day cover from the hour of admission to six o'clock on the following day, and

all other days to begin at six o'clock; so that if a patient comes in before twelve o'clock at night, his first day would end at six o'clock; if he comes in after twelve, his first day would end at six o'clock the following day. That plan has given better satisfaction than any other we have tried.

MR. PORTER: The trouble is occasioned by making weekly rates. I don't believe anybody goes to a hospital to stay a week; they go to stay as short a time as they can. It is different from going to a boarding house; if you have a job, you want to hold it more than a week; if you are going to a hospital, you want to make the time as short as possible. In Malden we have no weekly rate; we found it was too much trouble explaining to people what a week was. It is more convenient to have daily rates, and make the charges on that basis.

DR. BROWN, Mary Fletcher Hospital, Burlington, Vermont: We charge for the day of admission and the day of discharge as one day, regardless of the length of time they stay.

MISS BOOKER, Corey Hill Hospital: We make no charge for the day the patient enters, but we do charge for the day of discharge, regardless of the hour.

DR. HOWLAND: The question-box is placed just outside the door, and I hope we shall have a great many questions.

After the papers of this afternoon, we plan to have questions placed in the box answered, and I hope the questions will be there.

Meeting adjourned at 12:30 p. m.

(To be continued.)

Original Articles.

OBSTETRIC EMERGENCIES.

By R. S. TITUS, M.D., BOSTON.

GENERAL acceptance by the medical profession and by the laity of the great value of careful medical attention of the pregnant patient has greatly reduced both infant and maternal mortality and morbidity. This acceptance has come largely through intelligent propaganda sent out by the Child Bureau, United States Department of Labor, the American Child Hygiene Association, and state medical societies. It has aroused the interest of everyone in the condition of the pregnant woman, her limitless economic and social value.

State legislatures and the national government have busied themselves about legislation, relieving the financial burden of child-bearing, and providing adequate medical care before and at confinement. Much of such legislation is opposed as too socialistic, as derogatory to the

medical profession, and in general as depriving individuals of their free choice; but in spite of whatever may be said for or against it, all such activity shows how the wind is blowing. It means that people are now thinking about something which ten to twenty years ago was not even thought of. It means that child-bearing is a recognized problem of national importance, a condition in the past which has shown results to be ashamed of, and more than anything else it means that there is a remedy worth applying.

Intelligent prenatal care begins with the beginning of pregnancy, and, carried forward until its termination, has achieved definite results. It has ruled out as unfit to bear children, the chronic nephritides, certain tuberculars, the severe cardiacs, profound diabetics, and saved such patients from an obstetric death and for a life not further impaired. It has designated as hospital patients, not to be left in their homes in isolated communities, those whose bony pelvis make Caesarean a necessity, thus reducing to a point almost negligible the brutal craniotomies of twenty years ago. It has reduced the incidence of early miscarriage by thoughtful hygienic advice, and careful reposition of retroposed uteri. By routine blood analysis, it has singled out the syphilitics, and has made intensive anti-syphilitic treatment possible, with a distinct lowering of infant mortality from the specific etiological standpoint. It has found out the healthy pregnant patient and has kept her healthy. It has recognized early toxemias with increased blood pressure and albumin, and has prevented the occurrence of actual eclampsia, by intensive treatment and premature delivery. In this latter type of case, the occurrence of actual eclampsia has been reduced almost to the point of non-existence. It alone is worthy of all the kind things said on every hand of prenatal care.

All this, prenatal care accomplishes directly, but there are conditions which can neither be foretold nor prevented, serious accidents which will occur, and which adequate prenatal care cannot foresee or avert, and which must be met directly and intelligently to carry on the wonderful work of prenatal care to its ultimate successful conclusion. These represent the *true emergencies of obstetrics*.

Obstetrics deals with the pregnant woman and the unborn baby. Obstetric emergencies are acute conditions which jeopardize the life of either or both the mother and child. Of course, indirectly, any serious complication affecting the mother also affects the baby, but there are conditions which primarily affect the baby, even when the mother is in perfectly normal condition.

The first large class of cases, which are true obstetric emergencies, are bleeding cases. A perfectly well woman at or near the end of pregnancy, with no warning at all, whose urine is normal, whose blood pressure has not risen, may be seized with a profound hemorrhage.

While an initial bleeding attack is rarely severe enough to threaten life, its successor may come at any moment, and the first sign of bleeding must be looked upon as a distinct warning of impending danger. It matters little how physically perfect anyone is, loss of blood cannot be looked upon with unconcern. Post-operative hemorrhages are often fatal. Loss of blood is serious. Its replacement in time means the saving of life. Blood transfusion is one of the most valuable advances in medicine. Experience has taught that many early failures were caused by the transfusion of blood not acceptable to the recipient. Before being safely done, the blood of the donor must be found to match that of the recipient. It is a very simple matter during pregnancy to match the blood of the pregnant patient with that of her husband, or members of their families, and with a known group No. 4 individual, to be absolutely sure of an acceptable donor. Then, if the need of transfusion arises, valuable time has been saved, which must be consumed in blood matching before the actual transfusion can take place. This blood matching during pregnancy should be a routine procedure, for one never knows which patient may bleed before or after delivery, or which patient will need transfusion because of profound shock. Knowing that one has at hand an acceptable donor, if the need should arise, gives one a feeling of great comfort. Trying to get an acceptable donor at the time transfusion is necessary, is worrisome.

Bleeding cases which arise late in pregnancy need an intelligent diagnosis before intelligent treatment can be instituted. A very little blood should be looked into, its cause ascertained and its diagnosis established. The amount is of little significance. The smallest stain may be a forerunner of a severe hemorrhage, and its cause the most serious,—the centrally implanted placenta praevia. On the other hand, a very large amount may be really insignificant, when its cause has been ascertained to be merely ruptured varicose veins. It should be a routine never to be disregarded to examine vaginally every patient who bleeds at all. A diagnosis can be made in no other way. Such an examination can be done rightly only in a hospital, where all aids for true emergencies are at hand. For example: Mrs. S., eight months pregnant, reports that she has flowed a little. She should be taken into a hospital, after it has been found that her condition allows immediate removal. An acceptable donor should be got. The examination should be conducted, of course, under strict asepsis. The entire kit for bagging should be boiled. A Caesarean kit should be ready for immediate use. The patient should be under gas or ether, if a satisfactory examination cannot be made without. In other words, all should be in readiness to meet the condition that examination proves exists. Such routine will prove unnecessary very often, but the one time will come when

this habit will justify itself. The causes of bleeding in the latter months of pregnancy are:

Ruptured Varicose Veins.
Low Attached Separated Placentas.
Completely Separated Placentas, Normally Attached,—Placenta Ablatio.

Placenta Praevia:

- (a) Centrally Implanted Complete Placenta Praevia.
- (b) Complete Placenta Praevia, not Centrally Implanted.
- (c) Partial and Marginal Placenta Praevia.
- (d) Beginning Labor.

Varicose Veins: These may be on the labia or anywhere inside on the mucous membrane of the vagina. The amount of bleeding from these may be very great, but seldom serious. Diagnosis is made by inspection, or by feeling the clotted surface when the bleeding has ceased. Rarely is anything more than counterpressure necessary; occasionally ligation. Of course there is no danger to the foetus. There is no need of meddling with the uterus. Labor need not be started.

Low Attached, Partially Separated Placentas: These cases often bleed before labor starts. When seen the uterus is soft, the foetal heart distinct, there is no sign of internal bleeding. Vaginally the presenting part is felt all around the lower segment of the uterus above the cervix, and the finger, if put through the cervix, feels no placenta. Inspection reveals no varicose veins. Hence, by elimination, bleeding must come from a small area of placental separation, and this clinically is proved to be associated most frequently with the low attached placenta. Such cases should be kept quiet in bed for a few days, and if no further bleeding occurs, allowed to be up and about until labor comes. Very rarely such cases may bleed rather freely, too freely for the safety of the mother, and if she be not in labor and a primipara, abdominal delivery is probably the most conservative; but such instances are very rare. In such conditions in multiparae, where dilatation may be accomplished probably in a short time by the use of the bag, the bag alone would be sufficient. Often during labor there is some more bleeding, but usually, however, it is not enough to interfere with placental and uterine interchange, or enough to jeopardize the mother. After delivery the diagnosis is confirmed by finding the membranes torn near the placental edge, where there may be an adherent old blood-clot.

Completely Separated, Normally Situated Placentas, the Placenta Ablatio: The clinical picture of this type of case is very distinct. External bleeding is usually small in amount, the uterus is drumlike in feel, the foetal heart is gone,—because the placenta has separated,—the maternal pulse is up anywhere from 100 to 130, depending upon the amount of bleeding that has occurred. The blood pressure may be low, and in extreme cases, of course, very low. Vaginal examination reveals no placenta praevia. This

bleeding will continue until the uterine sinuses can contract. This cannot be accomplished until the uterus is emptied. A few of these cases are in such poor shape when seen that transfusion should be done as soon as, or before, any attempt is made to empty the uterus. The method of emptying the uterus depends upon whether or not the patient be in labor. If the patient be not in labor, primipara or multipara, the only conservative method is abdominal Caesarean section; if the patient be well in labor so that delivery from below may be done with no shock, version after dilatation is the method of choice. The bag is contraindicated, it may hasten dilatation, but in the meantime it in no way controls bleeding—*aecouchement forcé barbare*. Vaginal Caesarean is applicable to only those cases up to eight months, when the cervix may be brought down to a point where its sewing may be accomplished. A good number of placenta ablatio cases are seen associated with some degree of toxemia, but more specific etiology is unknown.

Placenta Praevias: The various degrees of placenta praevia are so named because of the amount of the internal os that is overlapped by the placenta. The centrally implanted complete placenta praevia is, of course, the most serious and, fortunately, very rare. It may give rise to bleeding any time after six and a half months, but often shows no sign until near term. The initial bleeding may be very slight. To go on the assumption that the cause in the particular case is of no real importance, and merely to put the patient in bed for a few days, making no attempt to diagnose the condition, is nothing short of criminal. One example will prove this.

A multipara had bled three different times in the last month of pregnancy; the attending physician had put the patient to bed each time, and had done nothing to determine the cause. The fourth attack occurred with labor and the hemorrhage was excessive. When seen she was almost pulseless, with a blood pressure of only 80, and died shortly after delivery. Had this patient been examined, and the cause of the bleeding determined at the time of the initial hemorrhage, and proper means of delivery had been instituted, there is no reason at all why she should not have lived.

Vaginal examination in these cases, if the patient be not in labor, will reveal something in the lower segment, anterior and posterior, above the cervix and between the presenting part and the finger. If the finger is put through the cervix, one feels the sponginess of the placenta and elicits more bleeding. If the patient be in labor and there be sufficient dilatation, the diagnosis is made by feeling the sponginess of the placenta inside the cervix. If the patient be not in labor and actually bleeding, immediate delivery is best. In primiparae, abdominal Caesarean section is without question the conservative operation. In multiparae not in labor, Caesarean is

safest, but the rubber bag may be used. Here, the bag, put through the placenta or outside the placenta, controls bleeding by pressing onto the uterine sinuses and hastens dilatation. Delivery, when the dilatation is accomplished, is by version. The foetal mortality of these cases delivered from below is extremely high. The Braxton-Hicks maneuver of going right through the placenta, when the cervix is not fully dilated, and grasping one leg, whereby to pull the buttocks on to the placenta, controls further bleeding, but frequently sacrifices the baby. If there be no bleeding when the diagnosis is made, and there is reason to wish to wait for the sake of prolonging pregnancy for the sake of the baby, the patient should be kept in a hospital to have Caesarean, when the bleeding recurs, or when the pregnancy has advanced to a stage where the baby has a good chance. If the patient be in labor, or well advanced in labor when seen, it is far better to use the bag to accomplish full dilatation than to manually stretch up the cervix. When the bag comes out with full dilatation, the hand is thrust through the placenta, and the baby delivered by version. It is well to bear in mind that placenta praevias of all types have a tendency to bleed after delivery. It is customary with some men to pack all placenta praevia uteri after delivery, but such a routine is not necessary. Remember the possibility! Be ready to meet the emergency when it arises, but do not forget that putting gauze into the uterus is a possible cause of sepsis.

Complete placenta praevias, not centrally implanted, but where the edge of the placenta falls way over the internal os, are diagnosed only by vaginal examination. It is oftentimes very difficult to differentiate between the centrally implanted placenta praevia and those which are complete because the internal os is overlapped. If the patient be in labor, with any dilatation at all, the differentiation can be made. If these complete praevias are diagnosed when not in labor, the safest and most conservative procedure, if immediate delivery seems best, is abdominal Caesarean section. The rubber bag is more applicable to the multiparous cervix than it is to the primiparous. If these cases are in labor when seen the bag is really all that is necessary, and the bag should be used until absolute complete dilatation has been obtained. It is far safer with three-finger dilatation in the multipara, to use the bag to accomplish complete dilatation than it is to dilate manually this soft placenta praevia cervix. Without question these cases do not stand dilatation well, even the moderate amount of dilatation that is necessary in multiparae showing three-fingers dilatation to begin with. They stand no shock at all, and one should be ready to transfuse any case of this sort after delivery. If the bag is used, it may be put outside or inside the ovum and has the twofold purpose of controlling bleeding and hastening dilatation. After the delivery of the bag, ver-

sion is the operation of choice. Braxton-Hicks maneuver is advocated in those cases showing some dilatation, but the bag gives far better results.

Partial and marginal praevias are diagnosed, of course, by vaginal examination. The partial ones are best treated universally by the bag, with version after the bag has been expelled. The marginal praevia can oftentimes not be felt until dilatation is pretty nearly complete. Simpler than the bag, and a procedure which works just as well, is rupturing the membranes. This allows the presenting part to fall down upon the edge of the placenta and controls bleeding during labor. It should be remembered in this type of case that directly after the head has come through the cervix, so that the neck is lying opposite the marginal praevia, there is no pressure exerted at that instant, so that consequently more bleeding might result. For this reason deliver immediately, with forceps, as soon as the head does come through the cervix. Any of these cases may bleed enough to require transfusion and, if at all necessary, do not hesitate.

Beginning Labor: Only a word as to the bleeding associated with the beginning of labor. This is merely the show, and if it be enough to excite suspicion, vaginal examination revealing nothing, will suggest the only possible cause.

Consider now post-partum hemorrhage. Its causes are:

- Atony of the uterus.
- Retained placentas.
- Partially adherent placentas.
- Lacerations.
- Ruptured varicose veins.
- Unintelligent handling of the third stage.
- Inversion of the uterus.

An *atonic uterus* is one which has lost its tone. Bleeding occurs after the birth of the placenta. The normal contraction and relaxation curve is transposed, so that the uterus is soft and flabby a much longer time than it stays in contraction, or it may stay relaxed all the time and contract none at all. It is a very safe routine to follow the uterus, as the baby is delivered, and hold on to it carefully after the baby is born. If the uterus is not held, the placenta may separate, may not be extruded through the internal os, and may lie in the internal os, acting as a ball valve, behind which a great deal of bleeding may go on. The uterus which is tardy in its contractions bleeds slowly, and a great deal of blood is gradually lost. All uteri should be held for an hour and not left then unless they are in a state of constant, firm contraction. Atony of the uterus is most often seen in (1) hydramnios and twin cases, where the muscle has been unnaturally stretched; (2) long, tedious labors, where its power has been all used up in attempting to rid itself of the baby; (3) precipitate labors where normal retraction has not had sufficient time to occur following contraction. Conducting any one of the

above classes, be particularly watchful of the uterus. A post-partum hemorrhage from an atonic uterus is a very unhappy and fearful sight; the blood may just gush out; the uterine sinuses at the placental site are wide open and will remain so until the muscle contracts to shut them down. It is now customary with many men to give an ampule of pituitrin, subcutaneously, as soon as the baby is delivered. This has no harmful effect and may hasten the placental separation. An intramuscular injection of ergot ought always to follow the placental delivery, where pituitrin has been used.

The treatment of an atonic uterus is to give the muscle some tone. Pituitrin and ergot both are great aids; manual massage and the external application of ice help; hot intrauterine douches are of value. Packing is the last expedient, because of the danger of introducing infection, but it should be done even at the expense of sepsis, when all else fails, because a septic patient is better than one who bleeds to death. If packing has been resorted to, the fundus should still be held. Fatal hemorrhages have occurred behind packs because of uterine relaxation. The after-treatment is the replacement of lost blood—transfusion. If it seems not quite necessary to transfuse, rectal water, intravenous salt or subpectoral salt will very rapidly replace fluid. Morphine is the drug *par excellence*. Strychnine does more harm than good. Raise the foot of the bed, keep the patient warm with heaters and blankets, and subsequently give her all the food, sunlight and fresh air that is possible. Intrauterine packs should be removed in not later than twelve hours; it is unnecessary to give an intrauterine douche after the removal of the pack.

Post-partum hemorrhage due to *retained placenta*: In such cases, the placenta is known to have separated, the fundus is higher than it should be, the cord has descended, the Crédé maneuver has been unsuccessful; the placenta must be removed. It usually is caught at the internal os, and can be removed with no great difficulty or danger. Packing may be necessary as a last resort, when the placenta is got, but usually not. Always etherize the patient. In the manual removal of the placenta very careful asepsis must be observed. Clean gown, clean gloves should be put on. The patient should be under ether, for the removal is painful and any struggling on the part of the patient may do immeasurable harm. The hand not entering the uterus should grasp the fundus from above, thus giving counter resistance to the hand in the uterus. In this connection the succenturiate placenta should be considered. This is diagnosed by seeing on the delivered placenta severed veins, running over cut membranes. If there be bleeding, the succenturiate must be got, and must be manually removed. Such a removal is very dangerous. The vagina cannot be sterilized, and the gloved hand goes through the

vagina and intimately attempts to disengage the placental tissue. Infection often follows. The uterus from which such placental tissue has been removed may need subsequent packing.

The slightly *adherent detached placenta*: This is usually very serious. The detached area has exposed a very big bleeding uterine area, the flowing leads to the belief that the placenta has separated and further time is wasted in attempts to Credé; all the while more bleeding results. Ultimately, the patient has lost much more blood than was realized, and is in poor condition when manual removal of the placenta is attempted. Such patients can lose no more blood. If there is any bleeding at all after the removal of the placenta, pack the uterus without hesitation. Transfusion here is imperative and a life-saver.

Lacerations: The great majority of lacerations caused by childbirth do not cause hemorrhage. Perineal lacerations are repaired at the time for the purpose of bringing together separated tissue, rarely to control bleeding. Bleeding caused by lacerations appears as soon as the baby is born. Cervical lacerations, bad enough to cause post-partum hemorrhage, are seen infrequently nowadays, because accouchement forcé is done so rarely. It is possible for a cervix to be torn badly enough at normal labor to require suturing for the purpose of stopping hemorrhages, but this is very, very rare, and it is also unusual for the cervix to be torn badly in operative delivery where the cervical dilatation has been complete, or nearly so, before operation. Cervical tears are diagnosed by bringing the cervix into view and are treated by suture. Veins near the clitoris, when cut by forceps which extend too far anteriorly, bleed very freely. When recognized and tied, the bleeding is seldom serious and stops immediately. Varicose veins may rupture spontaneously with the birth of the baby. The big grape-like masses so often seen on the labia bleed very profusely, but not really seriously, for counter-pressure or a suture will stop them very quickly. Perineal lacerations rarely involve a small artery or big veins, but the bleeding from these is very quickly stopped in sewing.

Post-partum hemorrhage is also caused by the *unintelligent handling of the third stage*. Too hasty attempts at Credé may cause premature separation of the placenta, with resulting relaxation. There is only one time to Credé a fundus and that is when the placenta has separated. Dogmatically waiting for a given number of contractions sometimes results in leaving the placenta in the uterus after it has separated; other times it results in attempting to express the placenta before it has separated. Placental separation evidences itself in two ways: the descent of the cord, and bleeding. There can be no bleeding unless there be some lacerations, until the placenta separates somewhat or entirely. Too vigorous attempts at Credé result occasionally in inverting the uterus, with or without separa-

tion of the placenta. Inversion may occur spontaneously, but probably infrequently; usually from poor management.

An *inverted uterus* causes post-partum hemorrhage. If the fundus, inside out, appears at the vulva, the diagnosis is simple. If the fundus is not in sight, attempts to look at the cervix to ascertain the cause of bleeding reveal the true condition. The inverted uterus must be replaced. Manual attempts, under ether, may be successful; if not, laparotomy is necessary. Patients in whom the uterus has inverted are usually in profound shock, and transfusion is often necessary.

Before leaving the subject of post-partum bleeding, a closely allied condition should be considered,—the completely adherent placenta. In one sense it is not an emergency, for it causes no bleeding. This condition is one of the most serious complications met with. Fortunately, it is rare. Its seriousness results from sepsis, post-partum bleeding and rupture of the uterus as possible sequelae of its removal. The truly adherent placenta shows no bleeding. After waiting a reasonable time, an hour for example, after the baby comes, during which time there have been contractions but no descent of the cord, or bleeding, the diagnosis of completely adherent placenta is made. It is the usual custom, once the diagnosis is made, to remove the placenta manually. The placental site, where the uterine sinuses are open, is the point where infection most easily occurs. The vagina cannot be sterilized. If nature has not completely attenuated the organisms normally present in the vagina at labor, of course they are carried up into the uterus by the gloved hand. Attempts at separation of the placenta are traumatic, no matter how gently performed, and of course organisms thus introduced are deposited where they will do most harm. Adherent placentas manually removed go septic in at least one-third of the cases and the mortality from the complication is really appalling. As already mentioned, attendant dangers besides sepsis are rupture of the uterus and post-partum hemorrhage, and because of these dangers the manual removal of the placenta is looked upon with much hesitation. Other methods of treatment have been advocated. One man advises, after waiting twelve hours with no evidence of separation, to cut the cord at the introitus and remove the placenta by extraperitoneal hysterotomy. This seems unnecessarily radical. Another suggestion is to leave the placenta in the uterus indefinitely, and do nothing unless bleeding occurs. Theoretically, so long as the placenta remains adherent, and does not get infected (and it must be admitted that going into the uterus through the vagina is the surest way of causing infection) it can do no harm. This conservative inactive method is not generally adopted, but is deserving much consideration. If the placenta is removed manually, small fragments are left behind

which may cause bleeding. If there is any tendency to bleed after removal of the placenta, the uterus should be packed, and if one knows that the uterus has been ruptured, one should consider seriously the need of going into the abdomen. So much for the bleeding cases.

Actual eclampsia as an obstetrical emergency is met with very infrequently where prenatal care has been adequately given. Nevertheless there is an occasional fulminating eclamptic, which comes up even in the best regulated obstetrical practices. The disease, so gradual in its onset, with its slowly rising blood pressure, the increasing urinary abnormalities, once in a while pops up almost overnight. The patient has had no oedema, her urine has been normal, her blood pressure has not risen, and right out of a clear sky a seizure presents. The treatment of such cases is now under advisement. There are two schools: The first says to leave the patient alone, get her kidneys working, give her morphia, do not operate more energetically than to start up labor; the other school bases its opinion upon the hypothesis that the cause of eclampsia is intimately associated with the uterine contents, and that unless an attempt is made to remove these, more absorption will take place, and advises immediate delivery. In one respect, so far as treatment goes, everybody is in accord. No one today advises accouchement forcé. This method of rapidly emptying the uterus was pretty universally in vogue ten or fifteen years ago. Patients not in labor were put on the table with a pulse of 80, the cervix was manually or instrumentally dilated, the baby delivered, the whole process consuming perhaps twenty minutes; the result very frequently was maternal death, and death due to divulsion of the cervix and shock, rather than to eclampsia. Because of this general experience, rapid delivery is no longer entertained. It still seems best, however, to most men, to empty such cases immediately, and this had best be done by abdominal or vaginal Caesarean section, depending upon the duration of pregnancy and the character of the cervix. If seizures occur unannounced in the midst of labor, allow labor to proceed, using oxygen for convulsions, and deliver operatively, when cervical dilatation is complete. Post-partum eclampsia is treated by blood-letting, oxygen for the convulsions, morphia, forcing fluids and catharsis. The after-treatment of any eclamptic is blood-letting, when the blood-pressure remains above 150, and forcing fluids to the limit, getting fluids in by rectum, under the breast, or into the vein. Morphia should be used to the physiological limit. Excessive catharsis is not rational. Repeated large doses of salts surely dehydrate the blood; moderate catharsis is more rational.

Before leaving that part of obstetric emergencies which deals primarily with the mother, consider the rather infrequent complication, obstetrical shock. Obstetrical shock is just like surgical shock. It is characterized by low blood pres-

sure, pallor, thready, rapid pulse, clammy perspiration, and, in general, exhibits a patient in a most extreme condition. This is seen after normal labors as well as after labors prolonged or complicated, after easy non-operative as well as after difficult operative labors. Of course, one is not surprised to see it associated with post-partum hemorrhage, but it is a very distressing and wearisome experience to be summoned a few minutes after attending a perfectly normal, healthy girl through an easy labor, to find her in a state of extreme collapse. One unconsciously feels for the fundus, and finding it hard and firm, with no unusual bleeding, all fear of hemorrhage ceases and one realizes that he has to deal with shock. Such cases when given morphia, heaters, and blankets, with the foot of the bed raised, will come around in a short time, but nevertheless they are very disconcerting. More unpleasant are the shock cases associated with operative delivery (which at the time seemed easy enough, but which, in retrospect, with the patient in a state of collapse, are crowded with alarming possibilities) or with hemorrhage, moderate or severe, which had seemed checked. In addition to the treatment suggested for the previous type, when the element of bleeding has entered, transfusion should be done without delay. The operation can be done immediately, for forethought has summoned on the spot an acceptable donor and transfusion shows the same remarkable effect for these shock cases as for the more or less exsanguinated cases that it has been suggested for previously.

So far the mother has attracted our attention. The emergencies enumerated affect her welfare. The second problem of the obstetrician is the baby, and I say second, advisedly, for the baby should never have preference over the mother, nor should any operative procedure be attempted for the baby, which carries with it any added risk to the mother. The mother comes first, always; not that the baby is not given due consideration! Whenever circumstances arise in labor which militate against the baby, all efforts to save the baby should be entertained, remembering that they should be entertained and executed at no added risk to the mother. Where prenatal care has not been intelligent, mothers with small pelvis in relation to the baby, are often allowed to go into labor for hours, when Caesarean was the only course to pursue, to safeguard both. But when labor has progressed unduly long, where infection in the mother may exist, classical Caesarean, while insuring a living baby, is out of the question; maternal risk is too great. Such cases are willful or ignorant emergencies and are to be treated in one of two ways,—either sacrifice the baby by craniotomy or follow Caesarean by hysterectomy. Pelvic tumors unrecognized before labor, obstructing vaginal delivery, are also ignorant emergencies and hold no real place in a paper which presupposes prenatal care. There are, however,

legitimate foetal emergencies which occur in anyone's practice which need rules of guidance. The condition of the baby during labor is followed by watching the foetal heart rate. We recognize as normal the variations of the foetal heart rate during and after contractions. These are not worrisome, but a distinct drop or rise in foetal rate, maintained and not spasmodic, means something. Such changes are evidences of foetal embarrassment. The cord may be pinched, the labor may be telling on the baby and the baby may be getting tired. If, along with the foetal heart change, there is a discharge of fresh meconium, we know that the baby is embarrassed right now. This embarrassment may be only temporary. Whatever the cause it may right itself in a few moments, and may, on the other hand, be an indication that the baby is truly in bad shape and in dire need of assistance, if it is to be born alive. What is to be done? Upon what shall the decision rest? The answer is simple. Do nothing for the baby at added undue risk to the mother. If labor has progressed so that delivery can be terminated right away, labor should be terminated. Simple forceps through the dilated cervix carries little or no risk and the child has a definite right to this risk, and the patient would want to assume that risk if she were asked. Now, on the other hand, suppose the above mentioned indication of foetal embarrassment presented itself early in labor, is operative interference justified? No operation emptying the uterus immediately can safely be done on the mother when the cervix is not dilated except Caesarean section. If the infant is really embarrassed, a dead infant may be the reward for a major procedure. If, on the other hand, the infant's difficulty is to right itself (and how can this be told?) an unnecessary operation requiring repeated Caesareans at subsequent deliveries will have been done. In such cases the only conservative procedure is to leave things alone. Caesarean is not to be sneezed at. Its mortality is higher than any such ratio of chance warrants, and should be condemned for the above indication.

Prolapse of the Cord: Prolapse of the cord is the only other real emergency occurring during labor, which affects the baby. This cannot occur when the presenting part fits snugly into the pelvis. But if the baby be little in comparison to the pelvis, and the cord long, there is plenty of room for the cord to slide down alongside the presenting part. If there be no presenting part in the pelvis, as in transverse presentations, when the membranes rupture, the cord of course prolapses. The importance of prolapse of the cord is the possibility of pressure on the cord, resulting in foetal asphyxia. Whenever this occurs, when delivery can be done without added undue risk to the mother, delivery from below should be accomplished. If the occiput presents and is low, do forceps; if the occiput is not low, do version. If the cord has been down some time when the patient is first seen, and has ceased to

pulsate, conduct the ease without thought of the baby, for the baby is dead. Allow nature to terminate the delivery normally, unless there be a malposition which requires operative interference for its own sake. Very rarely, early in labor, before cervical dilatation has progressed to a stage of safe vaginal delivery, the cord may prolapse. In such a case replace the cord and either use the bag to hasten dilatation or do nothing. Caesarean section for this complication is entirely unwarranted.

CONCLUSIONS.

Prenatal care has accomplished very definite results. It has ruled out patients unfit to bear babies; it strives to keep well those physically fit; it does away with craniotomies by substituting Caesarean at a safe time; it recognizes pelvic tumors obstructing labor; it almost entirely does away with actual eclampsia. Obstetrical emergencies which cannot be foretold or revealed will arise, which need intelligent diagnosis and very intelligent treatment. Obstetrical emergencies are conditions arising which have to do with the mother and the baby. As to the mother, the most important cases are those which bleed before, during, and after labor; these also include the adherent placenta, the inverted uterus and shock. As for the baby, foetal embarrassment due to pinched cord or prolapsed cord should be dealt with only after remembering that the mother should be subjected to no added risk for the sake of the baby.

A CONTRIBUTION TO THE THEORY OF THE LOCALIZATION OF MENTAL FUNCTIONS.*

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ABSTRACT.

- I. The Known
 - A. Anatomy
 1. Known Units
 - B. Physiology
 1. Functional Units
 2. Kinesis
 3. Localization of Sensation and Motion
 - C. Psychology
 1. Sensation, Association, Reaction and Inhibition
- II. Postulates
 - A. Anatomy
 1. From Psychology
 - B. Physiology
 1. Functional Units
 2. Variations in Kinesis
 3. Localization

*Read at the 12th annual meeting of the American Psychopathological Association, Washington, D. C., May 1, 1922.

C. Psychopathology

1. Can be arranged on psychological grounds
2. Variations in Kinesis
3. Localization

III. The Induction

- A. Abnormal Perception and Ideas
- B. Abnormal Actions and States

IV. Conclusions

It will be simpler, perhaps, in attempting to make a contribution to theory, to begin with the known, to begin with facts. These facts can also be grouped as anatomical, physiological and psychological facts.

The anatomical facts, which, as you understand, are the common knowledge of all medical men, will have to be considered for the purpose of this contribution, from a rather special standpoint. I have chosen to call the anatomical elements to be considered "units." Thus, for my purpose, each muscle is a unit, each gland is a unit, each system of fibres in the spinal cord is a unit, each segment of the autonomic system is a unit, though we are all aware that each of these so-called "units" is composed of much simpler histological elements, chemical elements, functional elements or even pathological elements, if they are diseased.

So much for the anatomical side. I might have added articular surfaces to my list of units. I might have added skin, eye, ear, tongue, nose, but I have not attempted a complete list. If we add these, our list is almost complete for my purpose.

Turning to the physiological side, another aspect presents itself. That is, the fact of "functional units." For example, we know that muscle never functions alone except under experimental conditions. It functions in conjunction with its motor nerve and, moreover, it sends centripetal impulses back to the central nervous system—a fact which is not often considered in physiological matters. This combination of motor nerve, muscle and sensory or centripetal nerve, I would regard as a functional unit.

In the same way, for the purposes of this article, we must consider neuro-glandular combinations as unitary in a physiological sense. In the same way, and for the same purpose, we may regard the genito-urinary system as one, though composed of nerve, muscle and gland; the gastrointestinal system, though composed of nerve, muscle and gland, and the cardio-respiratory system, though composed of nerve and muscle almost exclusively. Perhaps these latter, the cardio-respiratory, gastro-intestinal and genito-urinary, are better called physiological systems than physiological units. However that may be, the point that I want to bring home is that for the purpose of this paper, they must be considered together, whether you call them units or

systems. To these we might add the glands of internal secretion, perhaps, calling each with its appropriate nerves a unit and the entire set of opponents a system. However you do it, the main point, I think, must be clear.

There is another peculiarity in the physiology of these units or systems which is of a very general biological nature. By that, I mean, that this peculiarity does not end with either systems or units, but seems to apply to the simpler histological elements, and even to chemical and physical phenomena. That is the matter of force and direction, or order. Physical phenomena, chemical phenomena, the functions of the cell, of the unit or of the system, take place with a certain force and in a certain direction, or—to put the last in other words—with a certain orderliness. This observation seems to be of a fundamental sort, for this phenomenon appears to be due to the nature of matter and force. At least, so far, we have no other scientific explanation of it. This form of force, I prefer to call kinetic, thus linking it up somehow with that form of energy known as kinetic, and at the same time distinguishing it from static, which it is not, and from dynamic, which means both static and kinetic, and which is, for that reason, too comprehensive a term.

As for localization, anatomically and physiologically, we know, fairly well, certain of the cortical areas which have to do with the movement of striated muscle. We know those which have to do with certain of the senses, namely, the special senses, and to some extent skin sensibility. But there are large areas of the cortex which have not been mapped out as to function.

Of the subcortical ganglia we know indirectly and by direct experiment that certain parts are concerned with the bladder and genital region, that other parts control the motor expression of the emotions, and so on. Some of this knowledge is very definite and well rounded, more of it is still in that hazy stage preceding absolute certainty.

Turning finally to the psychological side, we have as elements or units sensation, association, reaction and inhibition. All other psychological processes are systems reducible to these units. Thus perceptions of all kinds can be reduced to these four units whether they are simple perceptions of concrete objects in the environment or whether they are complex perceptions such as those of space, time and meaning. All ideas, whether memory, imaginative, or general, can be reduced to these. All activities, whether those of will, of attention, or of thinking, are made up of them. All of our inner states, such as feelings, whether simple or complex, emotions, and attitudes, consist of them. Finally it may be said that the personality, consisting of an interplay of perceptions, ideas, activities, and inner states, is merely an expression of the manifold ways in which the organism senses, associates, reacts, and inhibits. Even such

things as self-consciousness, unity of personality, variations in personality, the feeling that the self takes an incomparable rôle, the consciousness of identity in successive periods of time, or the fact that the mind is thought of as representing the real personality and that the body seems to belong to the outside world, all fail to escape the thralldom of sensation, association, reaction, and inhibition.

The personality is the product of the interrelations and interactions of all these psychological systems and each system reduces to the four elements or units, which I have named, now so often.

From this ground material, the writer has attempted to raise a superstructure the postulates of which now follow. Beginning again with the anatomical side, we may postulate that the so-called association pathways in the brain do not connect one sensory centre with another directly, as has been supposed by the anatomists till now. These pathways rather connect the sensory centres for the muscle sense with those for the other senses and probably also connect the cortex with the basal ganglia, the fibres forming these latter pathways most probably running some in the one direction and some in the other, so far as we can judge on present information.

This postulate is made because of the nature of association, speaking psychologically. Moreover, we know of no instance where an ether wave may produce a sensation of sound, or where an air wave may produce a sensation of light. I might take up all the sensations in the same way but these examples above ought to carry my meaning to you.

If what I have said be true, we may add this system of fibres to our others. We have postulated a fibre system, known to exist, it is true, but not thought of in just this way, I imagine.

The function of this set of fibres then is sensory-sensory (perhaps associational in this way), that is to say, it links muscle sense with the other senses. We have then another functional unit, a postulated functional unit, the sensory-sensory neurone or the sensory-sensory system of fibres.

Referring again to the matter of energy or force, which we have been pleased to call kinesis, we may postulate that this force varies both in energy and in direction or orderliness. The variations in force we may assemble into those which are greater than usual and those which are less than usual. The former may be called hyperkinesis and the latter hypokinesis. The variations in direction or orderliness of this force we may call ataxia.

A study of these terms and of the conceptions embodied in them has led me to conclude that they are broad enough to include all variations both in the reaction of the normal and the pathological. They represent general ideas of a very broad and inclusive sort and yet specific enough in their generality to permit application

to every known case both in normal physiology and in pathology.

The last of my postulates in the physiological field is that the unmapped areas of the brain, the so-called silent areas, are probably sensory in nature and take in the gustatory, warm, cold, pain and touch senses which so far have not been thoroughly mapped out for the entire body; next that the physiological systems or units known so well and for so long, do probably take part in every mental process by virtue of the fact that they constitute the anatomical and physiological agents of reaction and inhibition, and, finally, that this interplay of nerve cells, peripheral and central, cerebro-spinal and autonomic, together with their muscular and glandular end organs, is all there is to what we call mind. To explain further: When one says "perception" he merely expresses in a word the functioning of certain neuro-muscular, neuro-glandular and nervous units or systems. When he says "idea" he expresses another phase of function in the same apparatuses. And the same is true when he says "activity" or "inner state."

And when he says that a perception was normal or when he sees from his examination of a patient that the patient perceives normally, he understands in that observation that the neuro-muscular, neuro-glandular and nervous mechanisms subserving the given perception are normally functioning. The same facts are evidence in the case of ideas, activities or inner states. And if the personality is normal, such normality testifies, by itself alone, to the normality of these systems which I have named.

We have one more field in which to make our postulates before turning to the induction. In the field of psychopathology we may postulate, first, that all the symptoms that patients show may be grouped on psychological grounds. Thus our patients show disorders of personality which are due to disorders of self-consciousness, to changes in the feeling that the self takes an incomparable rôle, to change in the consciousness of identity or to change in that distinction between the mind and the body or to changes in those inner states, activities, ideas and perceptions which we have enumerated earlier.

Our knowledge of the structure of attitudes, emotions and feelings takes them back to reactions and inhibitions directly and through ideas to the sensations. Our knowledge of the structure of thought, attention and will shows the same. Our knowledge of the structure of ideas takes us through perceptions and our knowledge of the structure of perceptions takes us directly back to the four psychological elements. The anatomical elements or units we know fairly well. The physiological units we know also fairly well. Our postulates make it proper for us to group our psychopathology into hyperkineses, hypokineses and ataxias.

The inductions follow. In the first place, we may conclude that perceptions and ideas, if normal, mean that the cerebral cortex is normal. In the next place, we may conclude that if the activities and inner states are normal, the basal ganglia, autonomic and muscle and gland systems are normal.

If perceptions and ideas are abnormal, we may conclude that there is trouble somewhere, but we cannot say on that fact alone where the trouble is, especially if the trouble is a hyperkinetic or ataxic one. If it is hypokinetic or an extreme case that might be called akinetic, we may feel sure that the trouble is cortical.

If the abnormality is in the activities or inner states, we may follow the same reasoning. If it is an hypokinesis or akinosis the trouble is at least extra-cortical; if ataxic or hyperkinetic, it may be anywhere.

In practical cases the presence of an hyperkinetic symptom here and of an hypokinetic or akinetic one there serves to fix the trouble fairly well as to whether it is extra-cortical or whether it is cortical. If this can be done in every case of psychopathy, the practical meaning of this induction is of course tremendous.

The final end of this study should be to establish psychiatric diagnosis upon an anatomical and upon a physiological ground. Then we can add our etiological factor in each case, give our prognosis and prescribe our treatment in a thoroughly logical and scientific manner. Psychiatry will then become a part of general medicine. Psychology has made the first step. It is now distinctly the business of physiology to tell us more within its field and to chemistry and pharmacology to give us a rational therapeutics.

NOTE 1: Two elements I have omitted in this discussion. One is the effect of innate tendencies, the other the effect of training or habit. These may also affect physiological systems, making them over-function or under-function or function in an ataxic manner. Of course, in such cases we need reëducation and not chemotherapy. For prevention of such cases we need all the means being developed by the mental hygiene movement and not so much the prevention of physical disease. The prevention of the kinds produced by physical means will be aided by the prevention of syphilis, alcoholism, tuberculosis and by every well-organized public health measure which we have.

NOTE 2: According to the plan outlined here every diagnosis in psychiatry can be arranged as follows:

Physiology	Anatomy	Etiology
Hyperkinesis	Cortical Subcortical, etc.	Alcohol, Syphilis, etc.
Hypokinesis	Cortical, Subcortical, etc.	Alcohol, Syphilis, etc.
Ataxia	Cortical, Subcortical, etc.	Alcohol, Syphilis, etc.

Prognosis	Treatment
Usual expressions	Consider all factors
Usual expressions	Consider all factors
Usual expressions	Consider all factors

It may be that this formula is general enough to include all forms of disease. That, I have neither time nor inclination to pursue into its details at present.

The Massachusetts Medical Society.

PROCEEDINGS OF THE COUNCIL.

STATED MEETING, OCTOBER 4, 1922.

A STATED meeting of the Council was held in the Boston Medical Library, at 12 o'clock noon, October 4, 1922. The President, Dr. John W. Bartol, was in the chair and the following 106 Councilors present:

BARNSTABLE, W. D. Kinney.	MIDDLESEX SOUTH, E. W. Barron, E. H. Bigelow, F. G. Curtis, C. B. Fuller, F. J. Goodridge, C. E. Hills, L. H. Jack, F. R. Jonett, S. F. McKeen, C. E. Mongan, J. W. Sever, F. G. Smith, E. H. Stevens, A. K. Stone, Fresenius Van Nijss, H. R. Webb, G. W. W. Whiting, W. S. Whittemore, Alfred Worcester.
BERKSHIRE, A. P. Merrill.	NORFOLK, E. H. Baxter, D. N. Blakely, E. H. Brigham, A. N. Broughton, W. L. Burrage, W. A. Griffin, F. C. Jillson, G. W. Kaan, Bradford Kent, Hale Powers, Victor Safford, G. H. Scott, W. J. Walton, Augusta G. Williams.
BRISTOL NORTH, Sumner Coolidge, F. A. Hubbard.	NORFOLK SOUTH, C. S. Adams, O. H. Howe, G. M. Sheahan.
BRISTOL SOUTH, E. F. Cody.	PLYMOUTH, A. L. Beals, W. C. Keith, Gilman Osgood, F. G. Wheatley.
ESSEX NORTH, R. V. Baketel, J. J. Bartley, J. Forrest Burnham, W. W. Ferrin, T. R. Healy, A. M. Habbell, G. E. Kurth, F. D. McAllister.	
ESSEX SOUTH, F. W. Baldwin, J. F. Donaldson, H. K. Foster, W. T. Hopkins, J. F. Jordan, W. G. Phippen, A. N. Sargent, J. W. Trask.	
FRANKLIN, B. P. Croft, G. P. Twitchell.	
HAMPDEN, E. P. Bagg, Jr., A. C. Eastman, G. H. Jones, J. P. Schneider.	
MIDDLESEX EAST, L. M. Crosby, C. E. Ordway.	
MIDDLESEX NORTH, W. B. Jackson, J. A. Mehan.	

SUFFOLK.

J. W. Bartol.
Robert Bonney.
E. G. Brackett.
M. E. Champion.
Loretta J. Cummins.
Lincoln Davis.
G. B. Fenwick.
G. S. Hill.
W. C. Howe.
J. C. Hubbard.
H. T. Hutchins.
Donald Macomber.
G. B. Magrath.
R. H. Miller.
E. H. Place.
W. H. Robey.
Stephen Rushmore.
C. L. Scudder.
J. S. Stone.

SUFFOLK (continued).

Louisa P. Tingley.
F. H. Williams.
WORCESTER.
F. H. Baker.
W. P. Bowers.
L. R. Bragg.
G. A. Dix.
G. E. Emery.
Homer Gage.
J. J. Goodwin.
R. W. Greene.
E. L. Hunt.
A. G. Hurd.
A. W. Marsh.
C. B. Stevens.
F. H. Washburn.
WORCESTER NORTH.
A. H. Quessy.

The record of the last meeting was read in abstract by the Secretary and approved by vote.

The President referred feelingly to the sudden death of Dr. William Andrew Dolan, of Fall River, for 21 years a counselor and supervising censor of the Bristol South District, at his home in Fall River on October 1st, at the age of 64. "Dr. Dolan, of Irish-Scotch ancestry, a native of Shirley, Mass., had graduated at St. Joseph's College, New Brunswick, in affiliation with Laval University, in 1879, and then from the medical department of the University of Pennsylvania, where he received his M.D. in 1882. After completing a service as house surgeon at St. Peter's Hospital, Albany, N. Y., he settled in practice in Fall River. In 1891 he was appointed medical examiner by Governor William E. Russell, holding that office at the time of the celebrated Lizzie Borden murder trial. He was a member of the school board and in 1900 was president of the Bristol South District Medical Society, the following year being elected counselor and supervising censor, the positions he filled so acceptably and faithfully for such a long period. Few meetings were held without his presence and active participation in the deliberations. He was looked up to and his judgment was valued by everyone who came in contact with him. As we saw him here—intelligent, pertinacious, unmoved by expressions of approval or disapproval, in a popular sense holding to his own, he presented an example for us all which we must always value."

The Chair announced the members of the Gorgas Memorial Committee, which he had appointed under the vote of the Society at its meeting on June 14, 1922. The names follow:

F. C. Shattuck, *Chairman*
S. B. Woodward
E. H. Stevens
F. B. Lund
W. H. Robey

He explained that according to past custom the Committee of Arrangements for the annual meeting would be called on for a statement of

the provisional plans that had been made, that standing committee in the present situation having immediate charge of the preparation of the matter for the official program and of the general arrangements in cooperation with the President, while the local arrangements would be attended to by a supplementary committee of men in Pittsfield and the surrounding territory. In the absence of Dr. K. G. Percy, chairman of the standing committee, Dr. A. P. Merrill, of Pittsfield, was called on and said that while the details of the meeting had not yet been made the work had been started and the meeting places and a part of the program outlined. The Pittsfield members wanted to have a large attendance and hoped to give an instructive and interesting meeting. They planned to send a questionnaire to all of the Fellows asking whether they would attend and how many guests they would bring with them, so that definite plans could be perfected for entertaining all that might come. The Chair thought that the meeting was sure to be a successful one and hoped that the entire society would join in efforts to make it a notable occasion. In accordance with the suggestions that had been made to him he nominated the following local Committee of Arrangements for the meeting in Pittsfield on June 12 and 13, 1923, and they were appointed, by vote:

A. P. Merrill, *Chairman*
B. W. Paddock
J. B. Thomes
C. H. Richardson
P. J. Sullivan

At the behest of the standing Committee on Publications and Scientific Papers the Secretary read a letter from Dr. Dean Lewis, of Chicago, accepting his appointment as Shattuck Lecturer for the meeting in 1923.

Dr. D. N. Blakely, Chairman of the Committee on Membership and Finance, reported for that committee on the name of General Leonard Wood, nominated for honorary membership at the meeting of the Council on June 13, 1922, and referred to his committee under the provisions of Chapter I, Section 4, of the by-laws, that the committee confirmed the nomination and recommended his election. General Wood was thereupon elected to honorary membership by a unanimous vote, by a show of hands.

Dr. Blakely then read the remaining sections of his report on membership, those numbered 2, 3, 4 and 5. Under No. 2,—those who were to be allowed to resign,—Dr. W. P. Bowers objected to the name of Philip A. E. Sheppard, of 253 Newbury Street, Boston, stating that having been connected in 1917 with the Gordon Pible College and informed by the Committee on Ethics and Discipline that it was unethical to publish advertising matter concerning that college and his connection with it, Sheppard had lately deliberately taken up the practice of

chiropractic, announcing himself on his street sign and in the telephone directory as a practitioner of that cult; then he had taken up the Abrams' cult of electronic reactions and ohms. While applying that treatment he promised to cure a young man, for a large money consideration, of so many ohms of syphilis and so many ohms of sarcoma. The matter was placed before the Committee on Ethics and Discipline and that committee saw fit to ask for Dr. Sheppard's resignation while bringing the matter to the attention of the Massachusetts Board of Registration in Medicine. That board after several hearings, at which Dr. Sheppard was represented by eminent legal counsel, revoked his license to practice in the State. Dr. Bowers thought that if the Massachusetts Medical Society stands for ethical practice it is reasonable to suppose that a man who has shown himself to be unethical should be expelled and not be allowed to resign. A somewhat similar case had come up in 1918 where an unethical practitioner had not been allowed to resign, by vote of the Council; charges had been preferred against him subsequently by the Committee on Ethics and Discipline, a trial was held and he had been expelled by vote of the Society.

Dr. E. H. Bigelow favored the remarks of Dr. Bowers. It had been an old custom in New England to clean house once a year or oftener: the robe of the Society was not broad enough to cover a man who prostitutes himself for money; he hoped the case of Dr. Sheppard would be referred back to the Committee on Ethics and Discipline. On motion by Dr. Bowers it was *voted*: That the name of Philip A. E. Sheppard,—No. 6 on the list of the Committee on Membership and Finance, to be allowed to resign,—be stricken from said list and the case recommitted to the Committee on Ethics and Discipline for another recommendation as to the status of this Fellow.

On motions by G. W. Kaan, A. N. Broughton, Lincoln Davis and E. L. Hunt the names of B. N. Bridgman, Roy Garland, W. L. Smith and A. G. Kilbourne, offered respectively, were stricken from Section 4—33 names of Fellows to be deprived for non-payment of dues—of the report of the Committee on Membership and Finance, leaving twenty-nine names. As amended the report as a whole was accepted and its recommendations adopted.

REPORT OF COMMITTEE ON MEMBERSHIP AND FINANCE AS TO MEMBERSHIP.

The Committee on Membership and Finance makes the following recommendations as to membership:

1. At the last meeting of the Council, June 13th, 1922, General Leonard Wood of the Philippine Islands was nominated for Honorary Membership in the Massachusetts Medical Society, under the provisions of Chapter I, Section 4, of the by-laws.

Your Committee confirms this nomination, and recommends his election.

2. That the following named five Fellows be al-

lowed to resign under the provisions of Chapter I, Section 5, of the by-laws:

Conner, Homer Leigh, of Omaha, Nebraska (Major M.C.U.S.A.) as of Jan. 1, 1923.

Glidden, Edson Williams of Alto, Ga. (State Sanatorium) as of Jan. 1, 1922, with remission of dues for 1920-21.

Golden, Ross, of New York City (Presbyterian Hospital), as of Jan. 1, 1923.

Jones, Basil Bradbury, of Los Angeles, Calif. (Brockman Building), as of Jan. 1, 1923.

Schuck, Clara Margaret, of Boulder, Colorado (Boulder, Colorado, Sanatorium), as of Jan. 1, 1923.

3. That the following named nine Fellows have their dues remitted under the provisions of Chapter I, Section 6, of the by-laws.

4. That the following named twenty-nine Fellows be deprived of the privileges of Fellowship, under the provisions of Chapter I, Section 8, of the by-laws:

Aaronsen, Jacob, of Chelsea (286 Chestnut Street). Adamian, Hovsep Garo, of Fresno, Calif. (2424 Ventura Avenue).

Aimone, Victor Anthony, formerly of Cambridge. Azadian, David George, formerly of Ellsworth, Pa.

Beaudet, Elphège Aleime, of Lowell (268 West 6th Street).

Bolduc, Albert George, of Bayonne, N. J. (847 Avenue C).

Carley, Margaret Elizabeth, of Brooklyn, N. Y. (150 Columbia Heights).

Crandall, Walter Midkiff, of Northwood Narrows, N. H.

Fregau, Aime Napoleon, formerly of Fitchburg.

Greany, William Francis, of Holyoke (644 Dwight Street).

Grover, Arthur Leon, of Los Angeles, Calif. (4621 S. Gramercy Place).

Guy, Walter Bryant, of St. Augustine, Florida.

Hamblen, Howard, of South Windham, Maine.

Hegarty, Joseph Gordon, of Boston (21 Bay State Road).

Hill, Lawrence Richardson, of Concord, N. H. (48 Pleasant Street).

Kelley, Robert Edward Stack, formerly of Mattapan. Koplin, Harry, of Los Angeles, Calif. (408½ Monita Avenue).

Lawlor, John Charles, formerly of Dover, N. H. MacKinnon, Donald Lauchlin, of Truro, N. S. (Prince Street).

Mahar, Harold Robert Collins, of Orange (Prospect Street).

Mayers, John Edward, of Santa Monica, Calif. (First National Bank Building, Ocean Park).

McConnell, David James, formerly of Greenfield.

McDonald, William Joseph, formerly of Brookline.

Pillsbury, Arthur Russell, of West Roxbury (U.S.P.H.).

Robertson, Jessie Wilhelmine, of Cambridge (1388 Mass. Ave.).

Scott, Norman McLean, formerly of Boston (536 Commonwealth Ave.).

Seibels, Robert Emmet, formerly of Springfield.

Stevenson, Effie Alleyne, of Agnew, Calif. (Agnew State Hospital).

Whitcomb, Clarence Adelbert, formerly of Springfield.

5. That the following named seventeen Fellows be allowed to change their membership from one district society to another without change of legal residence, under the provisions of Chapter III, Section 3, of the by-laws:

Dudley, Oscar A., Wayland, from Middlesex South to Worcester.

Morrison, William R., Brighton, from Middlesex South to Suffolk.

Parker, Willard S., Watertown, from Middlesex South to Suffolk.
 Richards, Thomas K., Cambridge, from Middlesex South to Suffolk.
 Shedden, Wm. M., West Newton, from Middlesex South to Suffolk.
 Thom, Douglas A., Belmont, from Middlesex South to Suffolk.
 Wilinsky, Charles F., Allston, from Middlesex South to Suffolk.
 Wright, J. Homer, Newton Center, from Middlesex South to Suffolk.
 Maynard, Herbert E., Winchester, from Middlesex East to Suffolk.
 Brown, Lloyd T., Milton, from Norfolk to Suffolk.
 Foley, John A., Dorchester, from Norfolk to Suffolk.
 Miller, Richard H., Roxbury, from Norfolk to Suffolk.
 Mysel, Philip, Roxbury, from Norfolk to Suffolk.
 Papas, Prodromos N., Brookline, from Norfolk to Suffolk.
 Phaneuf, Louis E., Brookline, from Norfolk to Suffolk.
 Richardson, Oscar, Roxbury, from Norfolk to Suffolk.
 Saeger, Ernest T., Brookline, from Norfolk to Suffolk.

D. N. BLAKELY, *Chairman*.

Reports of the committees appointed at the June meeting of the Council to consider the following petitions were read by the Secretary and each report was accepted by vote under the usual conditions: A. A. Pastene, W. A. Millet, J. Z. Naurison, J. T. Buckley, W. H. Gallagher, F. R. Tower. In the case of S. K. Pachanian it was voted to restore him provided he pay the dues for the current year within one month. In the case of H. A. Field the report recommended not accepting his petition and it was voted not to restore him.

On nomination by the President the following committees were appointed to consider petitions for restoration to the privileges of fellowship:

For T. E. A. McCurdy—S. H. Ayer, P. M. Smith, B. W. Pond.

For D. H. Shulman—Max Sturnick, W. W. Duckering, J. W. Lane.

For O. R. Fountain—N. P. Breed, W. T. Hopkins, Butler Metzger.

On nomination by the President the following were appointed a committee to audit the treasurer's accounts: R. G. Wadsworth, F. G. Balch. In the same way these were appointed delegates to the annual meeting of the Vermont State Medical Society at Burlington, October 12 and 13, 1923: A. P. Merrill, Pittsfield; E. J. Sawyer, Boston.

Dr. D. N. Blakely read the report of the Committee on Membership and Finance as to Finance. It was accepted and its recommendations adopted.

REPORT OF COMMITTEE ON MEMBERSHIP AND FINANCE AS TO FINANCE.

The Committee on Membership and Finance makes the following recommendations as to Finance:

1. That the annual assessment for 1923 be \$9.00, instead of \$10.00, as at present. This is because of the success, financial and otherwise, which has at-

tended the present management of the BOSTON MEDICAL AND SURGICAL JOURNAL, which has resulted in a material lessening of the expense of the JOURNAL to the Society.

2. That an appropriation of \$300 be made for the Committee on Maternal and Infant Welfare, to enable it to carry on the work already begun. This is to supplement the appropriation of \$350 made at the February meeting.

3. At the June meeting of the Council a letter was read from the Committee having in charge the project of a permanent memorial in Charlton, Massachusetts to Dr. William T. G. Morton, asking the Massachusetts Medical Society to cooperate with that Committee in raising funds for the memorial. Your Committee, while in general approving the plan for this memorial, is convinced that it would be inadvisable for the Society to make an exception to its usual rule, or tradition, not to make appropriations for projects of a similar nature, and, therefore, recommends that no further action be taken.

4. It appears probable that, after the bills of the current year have been paid, there will remain a substantial balance in the Treasury. Your Committee recommends that the Treasurer be authorized to transfer to the Permanent Fund such part of the balance as in his judgment shall seem advisable, to an amount not exceeding \$10,000.

D. N. BLAKELY, *Chairman*.

Reporting for the committee appointed by vote of the Society, June 14, 1922, concerning the amount of funds the Society is authorized to hold, under the terms of its charter, the Secretary read the following letter from E. P. Saltonstall, Esq., counsel of the Society:

BARRISTERS HALL, BOSTON,

September 14, 1922.

DR. JOHN W. BARTOL, *President*, and DR. WALTER L. BURRAGE, *Secretary*, Massachusetts Medical Society.

Gentlemen:

On September sixth last, Dr. Burrage sent me a copy of the proceedings of the Society at the annual meeting on June 13 and 14, 1922, and called my attention to pages 13, 50, 51, and 52, of the printed copy of the proceedings, on the last of which pages it was,

"*Moved*, that a committee be appointed, consisting of the President and Secretary, who in conference with legal counsel shall prepare a petition to the next General Court for the enactment of an amendment to Chapter 15, Section 9, of the Statutes of 1781, to bring said section into conformity with Chapter 180, Section 9, of the General Laws of Massachusetts, 1921, relating to charitable corporations, such proposed amendment to be submitted to the Council at the October meeting for approval."

I have looked into this matter with great care, and I feel very certain that no such amendment is necessary. By this I mean that the only limit to the holding of funds by the Massachusetts Medical Society is that imposed by Chapter 180, Section 9, of the General Laws of 1921, said limit being \$2,000,000.

This section is correctly printed at the bottom of page 51 and top of page 52 in the printed copy of the proceedings of the Society, June 13 and 14, 1922, heretofore referred to.

My reason for coming to this law conclusion is, as follows:

The General Laws of 1921, as you probably know, are a new codification of all the pre-existing statutes of Massachusetts. The previous codification, known as the Revised Laws, which took effect in January,

1902, by Section 8 of Chapter 125, which dealt with, "Corporations for Charitable and other purposes," and would include the Massachusetts Medical Society, limited the amount of property to be held by such corporations, "to an amount not exceeding one million five hundred thousand dollars." In 1915 the Legislature passed the following Act:

GENERAL ACTS, 1915.

Chap. 209—AN ACT RELATIVE TO THE LIMITATION OF PROPERTY OWNED BY CHARITABLE AND OTHER CORPORATIONS.

"Section 1. Every corporation heretofore organized by special act of the legislature for a purpose or purposes for which corporations may be organized under the provisions of chapter one hundred and twenty-five of the Revised Laws, and acts in amendment thereof or in addition thereto, may *despite any provisions contained in its charter*, acquire and hold real and personal estate to an amount not exceeding one million five hundred thousand dollars, in accordance with section eight of said chapter one hundred and twenty-five.

"Section 2. This act shall not be construed to limit the amount of real and personal estate which may be held by any corporation whose charter allows it to hold an amount greater than that mentioned in Section one hereof."

(The italics inserted by me.)

In 1917 the Legislature passed the following Act:

GENERAL ACTS, 1917.

"Chap. 45—AN ACT RELATIVE TO THE LIMITATION OF PROPERTY OWNED BY CHARITABLE AND OTHER CORPORATIONS.

"Section 1. Section eight of chapter one hundred and twenty-five of the Revised Laws is hereby amended by striking out the words 'one million five hundred thousand,' in the fourth and fifth lines, and inserting in place thereof the words:—two million,—so as to read as follows: *Section 8.* Any corporation organized under general or special laws for any of the purposes mentioned in section two, and under sections thirteen to sixteen, inclusive, may hold real and personal estate to an amount not exceeding two million dollars, which shall be devoted to the purposes set forth in its charter or agreement of association, and it may receive and hold, in trust or otherwise, funds received by gift or bequest to be devoted by it to such purposes.

"Section 2. Section one of chapter two hundred and nine of the General Acts of the year nineteen hundred and fifteen is hereby amended by striking out the words 'one million five hundred thousand' in the eighth line, and inserting in place thereof the words:—two million,—so as to read as follows:—*Section 1.* Every corporation heretofore organized by special act of the legislature for a purpose or purposes for which corporations may be organized under the provisions of chapter one hundred and twenty-five of the Revised Laws, and acts in amendment thereof or in addition thereto, may, despite any provisions contained in its charter, acquire and hold real and personal estate to an amount not exceeding two million dollars, in accordance with section eight of said chapter one hundred and twenty-five.

"Section 3. Nothing herein contained shall be construed to limit the amount of property that may be held by any corporation under the authority of a special act of incorporation or of any special law, whereby it is permitted to hold an amount exceeding two million dollars."

From the foregoing it is apparent that by Chapter 209 of the Acts of 1915, quoted above, the Legislature passed an Act which may be said to have been explanatory of Revised Laws, Chapter 125, Section 8,

declaring that nothing in the original charter of such corporations, limiting their power to hold funds to an amount less than \$1,500,000, should be binding upon them.

In 1917, by General Acts of 1917, Chapter 45, the Legislature raised this amount of \$1,500,000 to \$2,000,000, and again by Section 2 of that Act, stated that they might hold such a sum despite any provisions contained in their charter.

When the General Laws of 1921 were prepared, it was evidently felt by those preparing the codification, that the language of the section was sufficiently broad and definite to make it unnecessary to include the words, "despite any provisions contained in its charter" which are found in General Acts of 1917, Chapter 45.

With this history of the law I feel very safe in advising you as I have.

Article X, "Funds," of your Articles of Incorporation, which is printed in the "Digest, By-Laws, Code of Ethics and Malpractice Act of the Massachusetts Medical Society," is misleading as it now stands. It should appear at the end of that Article that it has been altered in the manner in which I have set forth in my letter.

If there is anything further which you wish me to do on this matter, or any further explanation which I can give you, do not fail to call upon me.

Very truly yours,

E. P. SALTONSTALL.

The Chair explained that counsel thought best to indicate in the "Digest" of the laws of the Commonwealth concerning the Society what the present situation as to funds is, therefore the committee had drafted a motion covering this matter. The motion was offered by Dr. H. T. Hutehins, who had brought in the motion for a committee last June; was seconded and carried unanimously.

Moved. That a statement worded as follows be printed at the end of Article X, Paragraph one, of the DIGEST of the Statutes of the Commonwealth of Massachusetts relating to the Massachusetts Medical Society:

"In the opinion of Endicott P. Saltonstall, Esq., Counsel for the Society, duly rendered September 14, 1922, to the President and Secretary,—a special committee duly acting by vote of the Society, June 14, 1922.—Section 9, Chapter 15, of the Statutes of 1781, is so far modified by Section 1, Chapter 209, of the General Acts of the year 1915, and by Sections 1 and 2, Chapter 45, of the General Acts of the year 1917, all being codified in the 'General Laws' of 1921, Section 9, Chapter 180, that the Society without amendment to its Charter, is, in common with any charitable corporation, permitted to acquire and hold real and personal estate to any amount not exceeding two million dollars, 'despite any provisions contained in its charter.'"

The committee appointed in June to arrange for a joint meeting or meetings of the State medical societies of New England, namely, Dr. J. W. Bartol, Dr. W. P. Bowers and Dr. A. P. Merrill, made a preliminary report through Dr. Bowers. He said the committee had been active in trying to ascertain the sentiment toward this project throughout New England; letters had been sent to the officers of the State medical societies and to other prominent practitioners; the replies had been almost unanimously in favor; the committee was ready to continue to function

and to ascertain the wishes of the different States and to hold a meeting in the near future of the representatives of these State societies for that purpose. On motion by Dr. J. S. Stone it was voted that the committee be continued and that the Council expresses its opinion in favor of holding such a combined meeting if possible.

Dr. H. G. Stetson, of Greenfield, read a report of the delegation from the Massachusetts Medical Society to the sessions of the House of Delegates of the American Medical Association, at St. Louis, last May (See Appendix). The report was discussed by Dr. C. E. Mongan, one of the delegates, who described some of the currents that ebbed and flowed in the House of Delegates. He thought that an error had been made in doing away with the weaker medical colleges, such as Dartmouth and Bowdoin, for now there are only five medical colleges in New England where a man can get a first-rate medical education,—not enough, to his mind, to provide practitioners for such a large territory. Such problems, affecting the whole medical profession, ought to have long consideration by authoritative medical bodies before they were acted on. He spoke also on the amendment to the constitution of the American Medical Association limiting membership in the House of Delegates, that he had proposed. It was voted to accept the report and to place it on file.

The Chair announced the officers of the new Section of Obstetrics and Gynecology that he had appointed under the terms of the vote of the Council last June: C. E. Mongan, *Somerville, Chairman*; F. C. Irving, *Boston, Secretary*.

Upon nomination by the President, Dr. C. J. Leary, of New Bedford, was elected counselor and supervising censor for Bristol South to fill the vacancy caused by the death of Dr. W. A. Dolan.

The Chair stated that at the annual meeting of the Council Dr. Croft of Franklin had presented a set of resolutions with relation to holding one or more of the meetings of the Council in Springfield or Worcester, that the expense of carfare of the councilors attending meetings of that body be paid from the treasury of the Society and that the resolutions be submitted to the eighteen district societies before final action on them be taken. The Chair hoped that there would be a definite expression of opinion on this question by the districts. The Secretary stated that thus far he had heard from only six districts, three of them being opposed to the purport of the resolutions, two in favor and one noncommittal. On being asked if he had anything to say at that time Dr. Croft said he had not.

The Standing Committee on Public Health reported through the chairman, Dr. Bigelow, on Dr. Mongan's motion as to the definition of

"public health" and "public health nurse" that had been committed to them, as follows:

Public Health.—Public Health has for its objective the promotion of the physical and mental well-being of the public, through preventive, educative or therapeutic measures.

Public Health Nurse.—A Public Health Nurse is a registered graduate nurse who is employed by, and who acts as, an agent of a statutory public health organization.

This was discussed by Dr. Mongan, Dr. E. F. Cody of Bristol South, Dr. A. H. Quessy of Worcester North, and Dr. G. M. Sheahan of Norfolk South. Dr. Mongan wondered where public health begins and private health leaves off in the consideration of the many problems of the day, notably in the matter of child hygiene and prenatal care. Dr. Cody championed the definition of the Committee on Public Health, of which he is a member. Dr. Quessy drew a distinction between community health, or public health, and the health of the individual, thinking that the former should not be allowed to trespass on the latter,—a tendency he noted in recent health legislation, a step toward social medicine. The department of labor and industry should concern itself solely with the individual, while the department of public health should have to do with the public alone, as set forth in this State by the opinion of an attorney general. Dr. Sheahan said he did not know whether the socialization of medicine was for the best or not; there were arguments on both sides. He was in favor of the views expressed by Dr. Quessy.

Adjourned at 2 P. M.

WALTER L. BURRAGE, *Secretary*.

APPENDIX TO THE PROCEEDINGS OF THE COUNCIL, OCT. 4, 1922.

REPORT OF DELEGATES FROM THE MASSACHUSETTS MEDICAL SOCIETY TO THE MEETINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT ST. LOUIS, MAY 22-26, 1922.

The Massachusetts Medical Society was represented at these meetings by its full quota of five delegates. In the committee appointments of the House of Delegates this Society was represented by Dr. Lund in the Committee on Medical Education, and by Dr. Stetson in the Committee on Reports of Officers.

The addresses before the House of Delegates of President Work, of President-elect de Schweinitz, and of the Speaker of the House, Dr. Warnshuis, contained much of interest and of value relating to the American Medical Association, and its work, as well as to the profession at large, and collectively they bring before the Legislative Body of the American Medical Association many thoughts and beliefs looking toward the higher standards and greater broadness of the work of the medical profession as a whole, and these should be carefully read by all members of the Society.

The report of the Secretary states that the membership of the American Medical Association as of May 1, 1922, was \$9,048, an increase for the year of 3,765. The Fellowship of the Association was 59,970, an increase of 2,952 in the past year.

The report of the Board of Trustees is a review of the business side of the Association, and shows the financial standing to be sound and progressive, and the capital invested to be constantly increasing. The demands upon the activities at the headquarters of the Association demand additional room, and plans have been perfected and partially carried out, providing for such increased space. A detailed financial statement accompanies the report of the Board of Trustees. One item of interest states that it is hoped and believed that the annual dues, which were increased from \$5.00 to \$6.00 in November, 1920, will be reduced to \$5.00 with the beginning of the new year.

As usual, the annual report of the Council on Health and Public Instruction, and of the Council on Medical Education and Hospitals were very complete and elucidating, and should be carefully read by those interested in present-day medical problems. The following quotation of the summary of the Council on Medical Education is worthy of repetition as illustrating some of the problems that must be met by this Council:

"The higher entrance requirements, improved medical schools, and the modern methods of teaching have created new problems in medical education. For example:

1. The necessity of limiting enrolments has made it difficult for well qualified students to secure enrolment in medical schools. It appears, however, that this difficulty is only temporary.

2. There is still ample room in Class A medical colleges for more than the total number of students enrolled in all colleges during the last session.

3. The cost of conducting medical schools under the present standards of medical education has been greatly increased. Instead of there being profits from students' fees, now the expense is two to four times the amount obtained from students' fees. The average income reported by sixty-nine medical schools is \$130,672, of which \$35,135 (26.9 per cent.) was obtained from students' fees.

4. The average expenditure of each medical school was \$123,947, including \$46,162 (37 per cent.) for all-time teachers, and \$21,131 (17 per cent.) for part-time teachers which makes 54 per cent. for instruction. The average annual fee paid by the student was \$185, and the average expense for his instruction was \$655. In 1916 the average fee was \$150, and the average expenditure was \$419.

5. Certain dangers from specialization have developed in that (a) medical schools are turning out specialists rather than thoroughly trained general practitioners, and (b) graduates are inclined to pose as specialists without first securing the essential experience or special training. The situation requires a reorganization of the undergraduate curriculum, and the requirement eventually, of evidence of special training before the physician is entitled to pose as a specialist.

6. Since the World War the lack of physicians in the smaller towns and rural communities has become more acute. It is evident that the solution of the problem is the establishing of hospitals in every center having sufficient population in the surrounding community to support a hospital.

7. A plan for the reorganization of the undergraduate curriculum calls for (a) the leaving of instruction in the specialties for the graduate school, (b) a less rigid division of the hours devoted to teaching in the various departments of the medical school, and (c) a closer correlation of clinical work with that of the so-called laboratory courses of instruction.

8. Among the acute problems of medical licensure are: (a) The licensing of graduates of low grade medical colleges by separate sectarian boards in Arkansas and Connecticut. (b) The licensing of

osteopaths as physicians in a few states, notably California, Colorado and Texas. (c) The granting of separate boards for certain groups of 'drugless' healers under a misconception of what is meant by the term 'the practice of medicine,' and (d) the importance of one standard of educational qualifications to be insisted upon alike for every one who is to be authorized to treat the sick."

As usual, a large number of resolutions were introduced in the House under the head of new business, some of which may be briefly considered. A resolution addressed to the Secretary of the Treasury and to Congress asking for a relief from the present unsatisfactory conditions attending the dispensing of alcohol for therapeutic uses by physicians, and recommending that provision be made for supplying bonded whiskey for medicinal use only at a fixed retail price to be established by the Government. A resolution addressed to those in authority having charge of the vocational training of disabled soldiers:

"To take such action in the interest of the welfare of all the people, and also for the protection of those who honestly desire to administer to the sick, to the end that the ex-soldiers seeking vocational training, which will fit them for ministering to the sick, and aiding in the recognition, control and prevention of disease, shall, at least, meet the requirements, and shall receive such adequate training as is defined in the classification of medical schools of the American Medical Association known as Class A, or acceptable medical schools—a standard which is approved by all right-thinking people moved by a desire for public welfare."

This resolution was passed, and is a modification of a resolution introduced at the request of the St. Louis Medical Society, stating that in the Ninth District, comprising the states of Missouri, Iowa, Kansas and Nebraska, there were enrolled in one Chiropractic School in Missouri more than 250 disabled ex-soldiers from all parts of the country, with the sanction and approval of the Government.

The definition of State Medicine this year, as last, called forth several attempts at its solution, no less than five such resolutions being introduced by different members of the House. The Reference Committee on Legislation and Public Relations finally recommended for adoption the following:

"The American Medical Association hereby declares its opposition to all forms of 'state medicine,' because of the ultimate harm that would come thereby to the public weal through such form of medical practice.

"'State medicine' is hereby defined for the purpose of this resolution, to be any form of medical treatment, provided, conducted, controlled or subsidized by the federal or any state government, or municipality, excepting such service as is provided by the Army, Navy or Public Health Service, and that which is necessary for the control of communicable diseases, the treatment of mental disease, the treatment of the indigent sick, and such other services as may be approved by and administered under the direction of or by a local county medical society, and are not disapproved by the state medical society of which it is a component part."

And this resolution was passed.

An amendment to the constitution was proposed which called forth much discussion, and was laid upon the table for one year, in accordance with the rules of the House. The amendment asked for reads as follows:

"Section 2.—Composition.—The House of Delegates is composed of delegates selected by the constituent associations, and of delegates from the Medical Departments of the Army and Navy, and the Public Health Service, appointed by the Surgeon-General of the respective departments, and of

section-delegates elected by the sections of the scientific assembly.

The section-delegates shall have the privilege of the floor, but only the right to vote on matters directly affecting the activities of the sections. The trustees shall be ex officio members of the House of Delegates, but without the right to vote.

Section 3. The total unrestricted voting membership of the House of Delegates shall not exceed 150. The Medical Departments of the Army and the Navy, and the United States Public Health Service shall each be entitled to one delegate, and the remainder shall be apportioned among the constituent associations in proportion to their actual membership as hereinafter provided in the By-Laws. The scientific sections shall each be entitled to one section-delegate. Should the right of the section-delegate to vote be challenged on a question before the House, decision shall be made by a ruling of the Speaker, subject to the approval of the House."

This amendment, if adopted, would do away entirely with members of the House of Delegates representing the various sections with voting power, 15 in all. The principal argument offered for the passage of this amendment was the statement that certain sections were receiving double representation, of which the state of Illinois was one example. This state is entitled to nine delegates. In addition to the nine delegates from the Illinois State Medical Society, it was represented by five of its members as delegates from the various sections, making the Illinois delegation in the House of Delegates fourteen instead of its allotted nine. On the other hand, many of the most active and influential members of the House of Delegates are the representatives of the various sections—men of experience and of considerable length of service in the legislative branch of the Association, and their withdrawal would be a distinct loss to the personnel of the House. Naturally there was much discussion regarding this resolution, and the end is not yet, as its final settlement in San Francisco in 1923 will not unlikely be preceded by something of an oratorical struggle.

The Sheppard-Towner law came in for its share of discussion, and was finally disposed of through the following resolution:

"Whereas, The Sheppard-Towner law is a product of political expediency, and is not in the interest of the public welfare, and

Whereas, The Sheppard-Towner law is an important socialistic scheme unsuited to our form of government, and

Whereas, The Sheppard-Towner law unjustly and inequitably taxes the people of some of the states for the benefit of the people of other states for purposes which are lawful charges only upon the people of the said other states, and

Whereas, The Sheppard-Towner law does not become operative in the various states until the states themselves have passed enabling legislation, therefore be it

Resolved: That the American Medical Association disapprove the Sheppard-Towner law as a type of undesirable legislation which should be discouraged."

The House approved the recommendation of the Board of Trustees relative to Public Health Activities of the American Red Cross, stating their belief that appropriate action should be taken to convince those in authority that the Public Health Activities of the American Red Cross are no longer necessary, and if continued are likely to promote community irresponsibility and helplessness in regard to its welfare. The House further voted that the Board of Trustees be instructed to take such action as will make this recommendation effective at the earliest possible moment. It is felt by the Trustees and by the House of Delegates as well, that much of the

work now being carried on by the American Red Cross can be taken care of by local and county medical organizations with much less dissatisfaction.

The question of Pay Clinics, Diagnostic Clinics, and Group Practice was brought to the attention of the House by the Board of Trustees, and the House voted that a survey be made of these clinics, such survey to be conducted jointly by the Judicial Council and the Council on Medical Education and Hospitals, with the request that their reports and recommendations be submitted to the next annual meeting of the House in San Francisco in 1923.

It was voted that the Trustees be authorized to establish a central bureau for the consideration of legislation, both national and state, in so far as such legislation pertains to medicine, or the practice of medicine, and the public health, such a central bureau to coordinate the activities of the several constituent state associations to ascertain and crystallize the opinions of the medical profession, and to represent the American Medical Association as a body.

The advisability of dividing the American Medical Association into districts was taken up on the suggestion of the President of the Association, Dr. Work, these several districts to be represented in the Board of Trustees by a Trustee, and in addition to the large, general meeting held yearly, that similar meetings be held in each district, preferably during the winter months. This matter was considered by the Reference Committee on Reports of Officers, who recommended that in view of the enormous scope and the great importance of this question, that the House direct the appointment by the President of a special committee to consider the matter, and report to the House of Delegates at the annual meeting in 1923.

The New England States have been very consistent for many years in reappointing their State Association delegates to the meetings of the American Medical Association. The wisdom of this custom is very noticeable in the work in the House of Delegates. The New England delegation has come to be looked upon as a group of capable, judicious, influential members, and as a delegation from one section of the country it is without question a group of men standing for the best things in medicine, and it is so considered in the House.

Respectfully submitted,

H. G. STETSON,
For the Delegates of the Massachusetts Medical Society.

Book Review.

Stedman's Medical Dictionary. Seventh Edition. By THOMAS LATHROP STEDMAN. 1144 pages, xv plates. Price \$7 net.

Stedman's Medical Dictionary has now reached its seventh edition. It is of convenient size for desk work and is a good example of the printer's art. There are several notable additions to be found in the appendix, such as plates showing the eggs of human parasites, changes in the morphology of the blood, the differential diagnosis of scarlet-fever as shown on the surface and on mucous membranes, protozoan parasites, and diagrams of anatomic structures. This book is of value to all interested in medical subjects and should be of assistance to writers of articles. It is published by William Wood & Co.

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ENTER DR. ABRAMS.

A RECENT issue of the JOURNAL* contained an editorial on "The Electronic Reactions of Abrams," in which was set forth an outline of the method employed by Dr. Abrams in diagnosing disease from a few drops of blood. The editorial pointed out certain fundamental defects in the method, and showed the impossibility of the conduction by Abrams' apparatus of any sort of electromagnetic current or radioactivity known to man. Further study of the subject was handicapped by the lack of opportunity to witness the method in operation. The local Abrams representative refused to run a series of test cases under any conditions.

Then, most opportunely, Abrams himself came to Boston. On Sunday afternoon, October 8th, he delivered a lecture at the Copley Plaza, at which between 800 and 1000 persons were present. On Monday afternoon, he appeared before the Board of Registration in Medicine at an informal hearing, prepared, as the Board was led to believe, to give a demonstration of his method. Opportunity had been given a representative of the practitioners of the Electronic method to inspect the room and to arrange for proper wiring, but when the meeting was called to order Dr. Abrams said it was impossible to give a demonstration then. Instead, he and

his followers started to hold an "experience meeting" in which they might testify to the efficiency of the method. Dr. Prior, chairman of the Board, acting with dignity and firmness, refused to listen to such a recital. The meeting was adjourned. The next day—Tuesday, October 10—pursuant to an invitation extended by him, Dr. Abrams gave a clinical demonstration of his method in the laboratory of one of his disciples. He first attempted to demonstrate simple phenomena based upon his theory of Electronic Reactions. It was a remarkable coincidence that the reactions were clearly visible or audible to those followers of his who were in the rear of the room, but were quite imperceptible to those members of the Massachusetts Medical Society who were there to look into the method and who occupied chairs close to the demonstration. Dr. Abrams consistently refused to submit his method to any test offered by those present, and confined himself to demonstrating the presence of lesions, the existence of most of which could be proved only by post-mortem examination. He selected for his experiment a member of the JOURNAL staff, a man in apparently perfect health. Yet this individual, according to Abrams, presented the following pathological conditions: Streptococcus infection of the left frontal sinus and of the right antrum; two ohms of tuberculosis, location, intestinal tract; congenital syphilis; sarcoma, non-metastatic, of the intestine. In demonstrating the situation of the sarcoma, Abrams located it first in the right lower quadrant and later, by another method, in the left lower quadrant.

Analysis of the results of Dr. Abrams' statements and demonstrations while in Boston shows two outstanding facts. First, he persistently refused to submit his method to a scientifically controlled test, or to a demonstration given under such conditions that the investigation of the method could be carried on under the usual rules of scientific criticism. Second, in the one case upon which he did demonstrate his method, he found the existence of four diseases—syphilis, tuberculosis, sarcoma, and streptococcus infection—in an individual entirely free from symptoms of any disease whatsoever. If, by his method, he could diagnose disease where no symptoms existed, he surely should have been able to approach without fear of failure a test based upon the diagnosis of blood specimens from a patient with well-marked clinical pathology. The fact that he refused to perform such a test is capable of only one interpretation—that is, that he knew full well his inability to make a really correct diagnosis.

The marvelous "cures" reported by himself and his followers must be explained on the ground of mental suggestion. Abrams gave this away when he said in his Sunday lecture that "if the patient will convince himself that he has no disease, I cannot elicit a reaction."

*August 17, 1922.

Abrams says that his Electronic Reactions are either the greatest miracle of the age or the greatest fake. No one who witnessed his demonstration and who listened at all critically to his vague explanation of the theory of these reactions could concede the former. Whether the thing is a conscious hoax or is a case of self-deception we cannot say. Whichever it is, it is dangerous doctrine; the time has come for the Board of Registration in Medicine to put a stop to the further perpetration of this fraud.

INSULIN IN THE TREATMENT OF DIABETES.

THE *New York Times* asserts that the use of Insulin in diabetes has been studied by officials of the Carnegie Corporation, and that an appropriation has been made for research work at the Potter Metabolic Laboratory and Clinic in California. It is claimed in this article that benefit has followed the use of this drug in practically all cases under observation. Dr. Pritchett will incorporate in the annual report of the corporation an account of the work carried on in California. Several remarkable cases are referred to in support of the claims.

This treatment was referred to in the Shattuck Lecture, delivered by Dr. Joslin in June, and is being used in Boston at the present time. To Dr. J. J. R. Macleod of Toronto belongs the honor of bringing this treatment to the attention of physicians.

The scientific spirit shown is in marked contrast with the claims often made by pseudoscientists.

The *Times* also publishes reference to a gift of a large residuary legacy under the will of Mrs. Sarah L. Winchester to the General Hospital Society of Connecticut.

THE MEETING OF THE AMERICAN COLLEGE OF SURGEONS.

PRESENT indications tend to show that the meetings of this Association, October 23rd to 27th inclusive, will be one of the most important in its history.

Its membership includes over two thousand representative surgeons, and since Boston has always enjoyed the reputation of being a liberal host, a large attendance is expected.

The College took upon itself the task of standardizing surgical teaching and practice so far as it may be possible to accomplish these ends. It has dealt wisely and conservatively with the problems involved. To some it has appeared that too much conservatism has been in evidence in some ways, and an undue liberality in others. These opinions, however, might be applied to any movement designed to correct

abuses and place service for the people on higher planes. Taken all in all, a great deal has been accomplished, for, as a result of the work of the College, surgery occupies a position of greater dignity in the estimation of the public than ever before in history.

The presidential address is looked forward to with great interest, because it is expected that important policies will be outlined which will have distinct bearing in the future plans of the College.

The standards already set, and the results achieved should have a great influence on the public mind, for in the last analysis the people are the ones most concerned in medical progress. The College can work within the profession to make surgery the efficient servant of the people, but in the end the public must set legal standards for the practice of surgery for its own protection. The present legal standards only call for mediocrity. Surgery is a specialty in medicine calling for extraordinary experience and mental endowment. The results of surgery may be beneficial or tragical. The College may directly or indirectly lead to the adoption of legal requirements and restrictions relating to the practice of surgery. It is in a position to mold public opinion, and should accept the responsibility of leadership.

IMMUNITY CONFERRED BY THE SCHICK TEST.

In an article dealing with diphtheria, published in the Bulletin of the Chicago School of Sanitary Instruction under date of September 30, 1922, the following assertion appears: "If it (the test) shows that he can catch diphtheria, a life-long protection can be given him by these injections one week apart," etc. The statement is, however, modified in the next paragraph as follows: "Six months after giving the third injection of this medicine (referring to toxin-antitoxin) a second test is made just like the first test. This is to make sure the child is protected." These excerpts are taken from a letter distributed to parents in Chicago.

The question comes to mind whether we are in a position to speak so positively about any remedial agent. Over-confidence and too strong assertions are often unwise. There are too many exceptions to the rules in medicine.

NEWS ITEMS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending October 7, 1922, the number of deaths reported was 208, against 170 last year, with a rate of 14.20. There were 30 deaths under one year of age, against 25 last year. The number of cases of principal reportable diseases were: Diphtheria, 51; Scarlet Fever, 33; Measles, 19; Whooping

Cough, 47; Typhoid Fever, 11; Tuberculosis, 41. Included in the above, were the following cases of non-residents: Diphtheria, 11; Scarlet Fever, 7; Measles, 1; Typhoid Fever, 3; Tuberculosis, 14. Total deaths from these diseases were: Diphtheria, 1; Whooping Cough, 4; Tuberculosis, 19. Included in the above, were the following cases of non-residents: Tuberculosis, 3.

APPOINTMENTS AT THE HARVARD MEDICAL SCHOOL.—During Dr. David L. Edsall's absence abroad, Dr. Worth Hale, Assistant Dean, will serve as Acting Dean, and Dr. Roger I. Lee has been appointed to the position of Acting Dean of the School of Public Health.

JOHNS HOPKINS HOSPITAL.—Dr. John M. T. Finney will fill the position made vacant by the death of Dr. Halsted until the faculty shall have made a selection of a permanent successor.

INVESTIGATION INTO THE CAUSE OF CANCER.—Boston is the place assigned for the work to be conducted by Dr. J. W. Scherechewsky, Assistant Surgeon General, U. S. Public Health Service, under the authority of the Treasury Department.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—The Semi-annual meeting of the Society was held at the Boston Medical Library, 8 The Fenway, on Wednesday, October 11, 1922, at 12 o'clock noon. Dr. Channing Frothingham of the Peter Bent Brigham Hospital read a paper on "The Relations of Osteopathy and Chiropractic to the Medical Profession." Lunch was served.

NEW ENGLAND SOCIETY OF PSYCHIATRY.—The semi-annual meeting of the New England Society of Psychiatry was held with Dr. R. Leighton Leak, Superintendent, at the Connecticut State Hospital, Middleton, Conn., Thursday, October 5, 1922.

In the absence of the President, Dr. Walter E. Fernald, Dr. E. B. Lane presided. Fifty-two members were present.

Program: "Endocrinology and Psychiatry," Dr. Walter Timme, New York. "Modern Trends in Psychiatry," Dr. Frankwood E. Williams, New York.

A NEW OFFICE IN THE NEW ENGLAND SURGICAL SOCIETY.—At the annual meeting in Burlington, Dr. John B. Blake was elected to the office of Recorder of the Society. Members will confer with Dr. Blake about the publication of papers and reports of discussions. This action was taken in order to relieve the Secretary, who has been obliged to work under the disadvantages incident to living away from Boston.

Miscellany.

CANCER WEEK.

Under Campaign Notes the prime essentials for cancer week of 1922 are outlined as follows:

1. Written Articles.
2. Motion Picture Theatres.
3. Scientific Meetings and Public Lectures.

Mr. Van Ness Harwood has been employed to conduct the publicity campaign. Short cancer articles will be published in the principal newspapers of the United States and Canada.

The following scheme for the organization of a cancer committee has been suggested:



In this plan of organization, the Central Committee is to be thought of as a group of men and women each of whom is chairman of the sub-committees appointed by him or her to carry on the educational work with a particular group or class of persons. In this way an equitable division of labor is attained. The Chairman of the Committee will be a physician; the Secretary has usually been an interested woman. The success of the Committee's work, where this plan is followed, is conditioned in the energy, tact and resourcefulness of the chairmen of the various sub-committees.

1922 HEALTH CHRISTMAS SEAL SALE.

QUOTAS SHOULD BE SET NOW.

ALL organizations in the state are asked again this year to set their own quotas. The National quota, as ratified by representatives of state organizations, is five million dollars. Massachusetts' share to raise is not less than \$200,000. The real quota for the state, of course, will not be 200,000, but it will be the sum total of quotas of the local associations of the state. Last year this figure was \$242,831. In order to actually reach our \$200,000 goal in Massachusetts, it will be necessary for our better organized territory to set for themselves quotas of not less than ten cents per capita, and no organization should set for itself a quota of less than six cents per capita.

It is recognized by our organizations throughout the country that the decline in returns from the Seal Sale during the past two years must be checked. It is believed that this can be accomplished by taking advantage of improving business conditions, and by beginning to organize earlier this year than has been done heretofore in most communities.

CLINICAL CONGRESS OF AMERICAN COLLEGE OF SURGEONS AT BOSTON.

PROGRAM FOR EVENING MEETINGS.

Presidential Meeting, Monday, October 23—Symphony Hall, 8 P. M.

Address of Welcome: Lincoln Davis, M.D., Boston, Chairman of Committee on Arrangements.

Address of the retiring president: John B. Deaver, M.D., Philadelphia.

Introduction of foreign guests: Raffaele Bastianelli, M.D., F.R.C.S. (Hon.), Rome; Francis Seymour Kidd, M.Ch., F.R.C.S., London; Andrew Fullerton, C.B., C.M.G., Belfast; Einar Key, M.D., Stockholm.

Inaugural Address: Harvey Cushing, M.D., Boston. The Doctor John B. Murphy Oration in Surgery—"Surgery of the Joints": Raffaele Bastianelli, M.D., F.R.C.S. (Hon.), Rome.

Tuesday, October 24—Jordan Hall, 8 P. M.

Einar Key, M.D., Stockholm: Treatment by Embolization of Circulatory Disturbances in the Extremities Due to Emboli.

Symposium: Genito-Urinary Surgery.

Hugh H. Young, M.D., Baltimore: Prostatectomy—Preparatory, Operative, and Postoperative Methods.

Francis Seymour Kidd, M.Ch., F.R.C.S., London: Simple Mesodermal Tumors of the Urinary Bladder; with the Report of a Case Treated by Operation.

Andrew Fullerton, C.B., C.M.G., Belfast: A Note on Unilateral Diuresis.

J. Bentley Squier, M.D., New York: The Surgery of Vesical Neoplasms.

Discussion: William C. Quinby, M.D., Boston; Alexander Randall, M.D., Philadelphia; John T. Geraghty, M.D., Baltimore; John H. Cunningham, M.D., Boston.

Wednesday, October 25—Jordan Hall, 8.30 P. M.

Special Meeting of the Boston Surgical Society.

Introductory Remarks: Robert W. Lovett, M.D., Boston, President.

Presentation of Henry J. Bigelow Medal to William Williams Keen, M.D., Philadelphia.

"Sixty Years Ago—1862 to 1922": William Williams Keen, M.D., Philadelphia.

Thursday, October 26—Jordan Hall, 8 P. M.

Symposium: Carcinoma of the Jaws, Tongue, and Cheeks and Lips.

George W. Crile, M.D., Cleveland: General Principles Involved in Operations: Summary of Results Obtained in the Crile Clinic, with Special Reference to Treatment of Carcinoma of the Jaws.

Edward S. Judd, M.D., Rochester, Minn.: Summary of Results Obtained in the May Clinic, with Special Reference to Treatment of Cancer of the Tongue.

George E. Brewer, M.D., New York: Summary of Results Obtained in the Presbyterian, Memorial, and

Roosevelt Hospitals of New York, with Special Reference to Treatment of Cancer of the Cheeks and Lips.

Discussion: Robert B. Greenough, M.D., Boston; Albert J. Oschner, M.D., Chicago; Vilray P. Blair, M.D., St. Louis; Joseph C. Bloodgood, M.D., Baltimore; Douglas Quick, M.D., New York; George P. Muller, M.D., Philadelphia; Harvey R. Gaylord, M.D., Buffalo; Alexander E. Garrow, M.D., Montreal; Channing C. Simmons, M.D., Boston.

Friday, October 27—Symphony Hall, 8 P. M.

Convocation of the American College of Surgeons.

Invocation: Reverend Doctor Alexander Mann, Boston.

Conferring of Honorary Fellowships.

Presentation of Candidates for Fellowship.

Presidential Address: Harvey Cushing, M.D., Boston.

Fellowship Address: Raffaele Bastianelli, M.D., F.R.C.S. (Hon.), Rome.

HOSPITAL CONFERENCE.

Monday, October 23, in Jordan Hall.

Morning Session, 9.00 to 12.30.

John B. Deaver, M.D., F.A.C.S., President, Presiding.

Report on the Standardization Activities of the College in 1922: Franklin H. Martin, M.D., F.A.C.S., Director-General, American College of Surgeons.

The Doctor and the Hospital: Frederic A. Washburn, M.D., Superintendent, Massachusetts General Hospital, Boston.

The Minimum Standard and Its Application to Hospitals: Frederick W. Slobo, M.D., Hospital Standardization Department, American College of Surgeons.

What Ideal and Lasting Benefit Has Come to the Nation from Hospital Standardization?: Charles B. Moulindier, S.J., President, Catholic Hospital Association.

The American Hospital: A. R. Warner, M.D., Executive Secretary, American Hospital Association.

Hospital Standardization from a Public Health Standpoint: D. A. Craig, M.D., Provincial Commissioner, Nova Scotia Division, Canadian Red Cross, Halifax, Nova Scotia.

Hospital Standardization from the Viewpoint of the Medical Staff: R. A. Hughes, M.D., Moncton, New Brunswick.

Side-Lights on Hospital Standardization: Robert Jolly, Superintendent, Baptist Hospital, Houston, Texas.

The Analysis of End-Results: Eugene H. Pool, M.D., F.A.C.S., New York, and E. A. Codman, M.D., F.A.C.S., Boston.

General Summary of Hospital Standardization: Malcolm T. MacEachern, M.D., C.M., Director-General, Victorian Order of Nurses for Canada.

Afternoon Session, 2 to 4.30—General Round Table Discussion.

Conducted by Malcolm T. MacEachern, M.D., C.M.

The Round Table Discussion will be confined largely to the requirements of the Minimum Standard. Hospital superintendents, staff members, and members of boards of trustees are urged to send in questions which they desire to be answered, in order that the discussion may shed light on the various difficulties encountered. After representative speakers have opened the discussion of these questions, the subsequent discussion will be open to all. A tentative list of the topics to be considered follows:

I. Staff organization:

1. The selection of the exact type of staff organization best suited to local needs.
2. The division of responsibility into representative committees.
3. The initial organization of the staff conference.
4. The agenda and detailed description of the staff conference.
5. Methods of stimulating interest and enthusiasm in staff conferences.
6. Monthly analysis of hospital work.

II. Case Records:

1. The component parts of a case record.
2. Methods of securing the records.
3. Methods of stimulating increased interest in the records.
4. The hospital historian or record-clerk.
5. Filing systems, card indices, disease nomenclatures, and follow-up systems.

III. Laboratories and X-ray facilities:

1. Methods of stimulating increased use of laboratories by the medical staff.
2. Relationship of laboratory charges to laboratory service, and the various systems of laboratory charges commonly employed.
3. The extent to which routine laboratory examinations should be employed.
4. Laboratory facilities in the small hospital.
5. Laboratory reports and filing systems.
6. What should constitute the complete service in an X-ray department?
7. The interpretation of X-ray plates by roentgenologist versus interpretation by individual physicians.
8. To what extent can X-ray facilities outside of the hospital be used satisfactorily?

IV. Miscellaneous:

1. What points in particular should the hospital surveyor investigate in making his annual visit?
2. Making the public understand the value of hospital standardization.
3. Methods of increasing the efficiency of the hospital survey of the College.

It should be clearly understood that all are urged to take part in the Round Table. Including the speakers of the morning program, the following names are a partial list of those who have been invited to lead in the discussion:

John G. Bowman, Chancellor, Pittsburgh University, Pittsburgh.
 Pliny O. Clark, President, Protestant Hospital Association.
 H. E. Webster, Superintendent, Royal Victoria Hospital, Montreal.
 W. C. Rappleye, Rockefeller Foundation.
 Horace G. Wetherill, M.D., F.A.C.S., Denver.
 Brigadier General C. E. Sawyer, M.C., U.S.A.
 Joseph B. Howland, M.D., Superintendent, Peter Bent Brigham Hospital, Boston.
 George W. Swift, M.D., F.A.C.S., Seattle.
 E. T. Dillon, M.D., F.A.C.S., Los Angeles.
 Roy C. Kingswood, M.D., London, Ontario.
 Rev. Newton E. Davis, Executive Secretary, Conference Board of Hospitals and Homes of Methodist Church.
 Matthew O. Foley, Managing Editor, Hospital Management, Chicago.
 S. S. Goldwater, M.D., Superintendent, Mt. Sinai Hospital, New York City.
 Joseph J. Weber, Editor Modern Hospital, Chicago.
 Frank E. Chapman, Superintendent, Mt. Sinai Hospital, Cleveland.

Henry M. Pollock, M.D., Superintendent, Massachusetts Homeopathic Hospital, Boston.

R. M. Harbin, M.D., F.A.C.S., Rome, Georgia.

Charles A. Gordon, M.D., F.A.C.S., Brooklyn.

John M. Baldy, M.D., F.A.C.S., Philadelphia.

A. K. Haywood, M.D., Superintendent, Montreal General Hospital, Montreal.

PRELIMINARY CLINICAL PROGRAM.

MASSACHUSETTS GENERAL HOSPITAL.

Tuesday, October 24.

C. A. Porter, G. W. W. Brewster, R. B. Greenough, Hugh Williams, and associates—9. General surgical operations.

Surgical Staff Clinic—2. C. A. Porter, J. H. Means, E. P. Richardson, and G. W. Holmes—Surgery of the thyroid gland. T. W. Harmer—Tendon surgery. Chester Jones—Bile analysis. D. F. Jones—Cholecystitis. W. J. Mixer, J. B. Ayer, and John S. Hodgson—Neurological surgery. C. L. Scudder and H. F. Hewes—Chronic gastric ulcer. Beth Vincent—Plastic surgery. Wynian Whittemore—Surgery of the lung.

Wednesday, October 25.

Orthopedic operations and demonstrations—9. Smith-Petersen—Arthrodesis of sacro-iliac joint. M. H. Rogers—Arthrodesis of hip joint. Z. B. Adams—Reduction of congenital dislocation of the hip. R. B. Osgood—Excision of semilunar cartilage or excision of knee joint. P. D. Wilson—Syme amputation. L. T. Brown—Spinal fusion. R. N. Hatt—Stoefel operation for spastic paraplegia. Z. B. Adams—Keller's operation for hallux valgus.

Demonstration of Orthopedic Cases—2. P. D. Wilson—Results of Syme amputation, apparatus. R. B. Osgood—Multiple myeloma; report of cases with pathological specimens. E. G. Brackett—Orthopedic surgery in China. Smith-Petersen—Correction of deformities of the hip by arthrodesis, results. Mark H. Rogers—Results of treatment of intractable scoliosis by arthrodesis of the sacro-iliac joint. Z. B. Adams—Possibility of reducing congenital dislocation of the hips in children over seven. L. T. Brown—Results of operative treatment of tuberculosis of the spine in adults. J. E. Goldthwait—Physical development in military training camps.

Thursday, October 26.

D. F. Jones, Lincoln Davis, E. P. Richardson, and associates—9. General surgical operations.

Staff Clinic: Symposium on Malignant Diseases—2. R. B. Greenough—Malignant disease, introductory remarks. D. F. Jones—Cancer of the rectum. R. B. Greenough—Cancer of the breast. D. C. Green—Cancer of the antrum. Lincoln Davis and G. A. Leland—Cancer of the uterus. Channing Simmons—Osteogenetic sarcoma. G. W. Holmes—X-ray as a prophylactic and in palliative treatment. H. P. Mosher—Cancer of the esophagus. C. L. Scudder and H. F. Hewes—Cancer of the stomach.

Friday, October 27.

R. B. Greenough and D. F. Jones—9. General surgical operations. J. D. Barney and associates—11. Genito-urinary operations.

Surgical Clinic by Staff—2. J. D. Barney—Pneumopyelography as an aid in diagnosis. G. G. Smith—Treatment of cancer of the penis. R. F. O'Neill. E. G. Crabtree—Surgical approach of the lower end of the ureter. H. H. Crabtree—Experiences with stone in the lower ureter. G. G. Jones—Methods of demonstrating tubercle bacilli in the urine. D. F. Jones and associates—3:45. Standardized treatment of frac-

BOSTON CITY HOSPITAL.

Tuesday, October 24.

F. B. Lund—9. General surgical operations. E. B. Young—9. Gynecological operations. J. C. Hubbard and associates—2. Dry clinic (general surgery). O. J. Herman—2. Intestinal gunshot wounds. E. B. Young and associates—2. Series and results in miscarriages. G. L. Vogel and associates—2. Ear and throat cases. L. M. Freedman—2. Carcinoma of soft palate and larynx. E. J. Monohan—2. Tonsillectomy in acute disease.

Wednesday, October 25.

J. C. Hubbard and associates—9. General surgical operations. G. L. Vogel and associates—9. Ear and throat operations. F. B. Lund—2. Demonstrations: carcinoma of stomach; carcinoma of tongue; facial nerve anastomosis; results of operation. I. J. Walker—2. Echinococcus cyst of liver; resection of stomach, three cases; oral cancer, radium, three cases. Stephen B. Mallett and W. H. Canavan—2. Cases of dental surgery.

Thursday, October 26.

H. A. Lothrop and associates—9. General surgical operations. Paul Thorndike and associates—9. Genito-urinary operations. F. J. Cotton and associates—2. Demonstrations: operation for recurrent dislocation of shoulder; series of cases of artificial ligaments in loose knees; arthroplasty, Putti technique; operation for flat-foot, new technique; pelvic fracture cases; Colles fracture results. P. F. Butler and A. W. George—2. Surgical X-rays.

Friday, October 27.

F. J. Cotton and associates—9. General surgical operations. H. A. Lothrop and associates—2. Demonstration of surgical cases. Horace Binney—2. Gangrene of the lung; abscess of the lung; separation of the lower epiphysis of the femur; certain type of fracture of the forearm. A. R. Kempton—2. Tumor of the carotid body. H. B. Stevens and associates—2. Ophthalmic surgery. J. J. Corbett—2. Series of cataract operations.

CHILDREN'S HOSPITAL.

Tuesday, October 24.

R. W. Lovett and associates—9. Orthopedic operations.

Surgical Staff Clinic—9. W. E. Ladd—Harelip cases (with lantern slides). C. G. Mixer—Undescended testicle. J. S. Stone—Pneumococcus peritonitis; omental tumors. G. D. Cutler—Teratoma; webbed fingers. T. H. Lauman—Hemangiomas. J. S. Stone and associates—2. General surgical operations.

Orthopedic Staff Clinic—2. Robert Soutter—Obstetrical paralysis. A. T. Legg—Pathology and treatment. J. W. Sever. J. H. Fitzsimmons—Clubfoot. R. F. Ober—Treatment and operative means.

Wednesday, October 25.

R. W. Lovett and associates—9. Orthopedic Clinic: Fractures of the spine in industrial accidents, results of stabilizing operations for weak or flail joints in poliomyelitis. F. R. Blumenfeld—9. Cases of orthodontia. J. S. Stone and associates—9. General surgical operations. R. W. Lovett and associates—2. Orthopedic operations.

Surgical Staff Clinic—2. Bronson Crothers—Injuries of spinal cord in childbirth. George D. Cutler—Meningocele. James S. Stone—Spina bifida occulta. William E. Ladd—Megacolon. Charles G. Mixer—Congenital defect of bile ducts.

Thursday, October 26.

R. W. Lovett and associates—9. Orthopedic operations.

Surgical Staff Clinic—9. T. H. Lauman—9. Skin grafts. W. E. Ladd—9. Cases of plastic surgery. G. D. Cutler—9. Ruptured kidney. C. G. Mixer—9. Tumors of the kidney; chronic pyelitis. James S. Stone and Oscar M. Schloss—9. Typhoid stenosis and spasm. D. Crosby Greene—9. Cases of laryngeal and esophageal stricture. J. S. Stone and associates—2. General surgical operations. R. W. Lovett and associates—2. Orthopedic clinic: Congenital dislocations of hip, results of operative treatment; Legg-Calvé disease, pathology and treatment; relief of contracture of the hip.

Friday, October 27.

J. S. Stone and associates—9. General surgical operations. R. W. Lovett and associates—9. Orthopedic clinic: Infantile paralysis, results in treatment clinic; muscle and tendon transplantation, the result of treatment; transplantations of the tensor fasciae femoris for paralysis of the abductors. R. W. Lovett and associates—2. Orthopedic operations.

Surgical Staff Clinic—2. W. E. Ladd—Intussusception. C. G. Mixer—Intestinal obstruction. G. D. Cutler—Intestinal obstruction by Mackel's diverticulum. J. S. Stone and O. M. Schloss—Atypical cases of appendicitis in children; differential diagnosis.

MASSACHUSETTS HOMEOPATHIC HOSPITAL.

Tuesday, October 24.

J. Emmons Briggs and W. S. K. Thomas—3. Surgery of the stomach, operations. D. W. Wells and associates—9. Operations on the eye. A. G. Howard—9. Orthopedics. Conrad Smith—9. Nose and throat clinic. D. W. Wells—9. Eye clinic. S. W. Ellsworth—9. Lesions of the gastro-intestinal tract. C. T. Howard and W. S. K. Thomas—2. General surgical operations. A. W. Rowe and W. L. Mendenhall—2. Vital function tests in relation to surgery.

Wednesday, October 25.

T. E. Chandler and H. J. Lee—9. Gynecological operations. Conrad Smith, E. R. Johnson, and C. W. Brush—9. Nose and throat operations. A. G. Howard—9. Demonstration: back strain. T. E. Chandler and H. J. Lee—2. Gynecological operations. A. S. Begg and F. H. Pratt—2. Anatomical and physiological demonstrations.

Thursday, October 26.

C. T. Howard and Clarence Crane—9. Surgery of the biliary tract. F. W. Colburn and H. L. Babcock—9. Operations on the ear. A. G. Howard—9. Orthopedics. Conrad Smith—9. Nose and throat clinic. S. W. Ellsworth—9. Demonstration: Some points in differential diagnosis of diseases of bones. J. Emmons Briggs and Clarence Crane—2. General surgery; operative clinic. W. H. Watters—2. Clinicopathological conference and medico-legal autopsy. D. L. Belding—2. Wassermann tests in surgical diagnosis. S. B. Hooker—2. The necessity for adequate compatibility tests preliminary to blood transfusion. Helmut Ulrich—2. Blood tests in surgery.

Friday, October 27.

A. G. Howard—9. Orthopedic operations. D. W. Wells—9. Eye clinic. R. C. Wiggin—2. Genito-urinary surgery; operative clinic.

FRIE HOSPITAL FOR WOMEN.

Tuesday, October 24.

W. P. Graves, F. A. Pemberton, and R. G. Wadsworth—9. Gynecological operations.

Wednesday, October 25.

W. P. Graves and F. A. Pemberton—9. Gynecological operations. W. P. Graves—2. Clinic on proclivencia; radium and cancer of the uterus.

Thursday, October 26.

W. P. Graves, F. A. Pemberton, and H. W. Baker—9. Gynecological operations. F. A. Pemberton—2. Clinic on diseases of the female urethra.

CARNEY HOSPITAL.

Tuesday, October 24.

F. W. Johnson and L. E. Phaneuf—9. Gynecological operations. L. E. Phaneuf—2. Gynecological clinic.

Wednesday, October 25.

J. T. Bottomley, D. F. Mahoney, and A. McK. Fraser—9. General surgical operations. C. M. Proctor—2. Oral surgery. W. E. Browne—2. End-results and demonstration of traumatic hands.

Thursday, October 26.

W. R. MacAusland and A. R. MacAusland—9. Orthopedic operations. W. R. MacAusland and A. R. MacAusland—2. Orthopedic demonstrations.

Friday, October 27.

J. T. Bottomley, D. F. Mahoney, and A. McK. Fraser—9. General surgical operations. D. J. Hurley and T. J. Shanahan—2. Eye, nose and throat operations.

PETER BENT BRIGHAM HOSPITAL.

Tuesday, October 24.

Harvey Cushing, W. C. Quinby, David Cheever, John Homans, and E. C. Cutler—9. General surgical operations. David Cheever, John Homans, E. C. Cutler, and F. C. Newton—2. Clinical demonstrations and talks (general surgical cases).

Wednesday, October 25.

Harvey Cushing, W. C. Quinby, David Cheever, John Homans, and E. C. Cutler—9. General surgical operations. Harvey Cushing, Gilbert Horrax, and Percival Bailey—2. Clinical demonstrations in neurological surgery.

Thursday, October 26.

Harvey Cushing, W. C. Quinby, David Cheever, John Homans, and E. C. Cutler—9. General surgical operations. W. C. Quinby, Roger Graves, and J. J. Jackson—2. Clinical demonstrations in genito-urinary surgery.

Friday, October 27.

Harvey Cushing, W. C. Quinby, David Cheever, John Homans, and E. C. Cutler—9. General surgical operations.

ST. ELIZABETH'S HOSPITAL.

Tuesday, October 24.

Arthur Chute—9. Genito-urinary operations. Arthur Crosbie—9. Genito-urinary operations.

Wednesday, October 25.

Joseph Stanton and Henry Rowen—9. General surgical operations. George Keenan and Francis Jantzen—9. General surgical operations.

Thursday, October 26.

Joseph Stanton and Henry Rowen—9. General surgical operations. George Keenan and Francis Jantzen—9. General surgical operations.

Friday, October 27.

Thomas Broderick—9. Orthopedic operations. Charles Kickham—9. Gynecological operations and obstetrical ward visit.

BOSTON LYING-IN HOSPITAL.

Tuesday, October 24.

R. S. Eustis—2. Hemorrhagic disease of the newborn. Donald Munro—2. Intracranial hemorrhage in the newborn.

Wednesday, October 25.

F. S. Newell—2. Cesarean section under local anesthesia. F. C. Irving—2. Abdominal abortion with sterilization. B. E. Hamilton—2. Cardiac complications of pregnancy.

Thursday, October 26.

F. S. Newell—9. Cesarean section.

BOSTON DISPENSARY.

Tuesday, October 24.

John D. Adams and associates—9. Orthopedic operations; Hibbs operation, tuberculosis of spine; claw foot; rigid flat-foot.

Staff Clinic in Out-Patient Department—9. H. F. Day and associates—General surgical cases. Maynard Ladd and associates—Pediatrics. Malcolm Storer and associates—Gynecology. W. E. Cheney and H. J. Inglis—Nose and throat clinic. John D. Adams and associates—Orthopedic clinic. T. C. Hill and F. P. Williams—Diseases of the rectum. A. H. Crosbie and associates—Diseases of the skin. J. D. Adams and associates—2. End-results, tuberculosis of spine, claw foot; non-operative treatment of acute hip infection. Occupational therapy (with lantern slides).

Wednesday, October 25.

H. F. Day and associates—9. Surgical operations; Inguinal hernia in the child; ingrowing toe nail; septic hand, an industrial injury. F. P. Williams, T. C. Hill, and associates—9. Fissure in ano; internal hemorrhoids.

Staff Clinic in Out-Patient Department—9. H. F. Day and associates—General surgery. Maynard Ladd and associates—Pediatrics. Malcolm Storer and associates—Gynecology. W. E. Cheney and H. J. Inglis—Nose and throat clinic. John D. Adams and associates—Orthopedics. T. C. Hill and F. P. Williams—Diseases of the rectum. A. H. Crosbie and associates—Genito-urinary clinic. H. F. Perry and associates—Diseases of the skin.

Staff Clinic and Short Talks—2. Benjamin Tenney—Some points in the anatomy and surgery of the knee joint. W. P. Cones—Bone Syphilis. R. H. Gipatrick—Ankylosis of the jaw. W. F. Temple—Out-patient anesthesia. F. G. Barnum—Osteomyelitis. T. C. Hill

—Out-patient treatment of rectal diseases. Oliver G. Tinkham—Fracture of the elbow joint. Carl Bearse—Adaptation of amputation stumps to artificial limbs. J. J. Lynch, Jr.—Cervical adenitis. John J. Murphy—Abdominal diagnosis in the out-patient department. H. F. Day—Peritonitis following tonsillar infection.

Thursday, October 26.

W. E. Cheney and H. J. Inglis—9. Nose and throat operations. H. J. Inglis—9. X-ray diagnosis of diseases of nasal sinuses.

Staff Clinic in Out-Patient Department—9. H. F. Day and associates—General surgery. Maynard Ladd and associates—Pediatrics. Malcolm Storer and associates—Gynecology. W. E. Cheney and H. J. Inglis—Nose and throat clinic. T. C. Hill and F. P. Williams—Diseases of the rectum. A. H. Crosbie and associates—Genito-urinary clinic. H. F. Perry and associates—Diseases of the skin.

Clinic by Staff—2. W. E. Preble—Post-operative care of patients. Herman Osgood—X-ray treatment. A. K. Paine—Treatment of gonorrhea in women. L. H. Spooner—Health clinic. Maynard Ladd and Hilbert F. Day—Pyloric stenosis in infants; medical and surgical aspects.

Friday, October 27.

Staff Clinic in Out-Patient Department—9. H. F. Day and associates—General surgery. Maynard Ladd and associates—Pediatrics. Malcolm Storer and associates—Gynecology. W. E. Cheney and H. J. Inglis—Nose and throat. J. D. Adams and associates—Orthopedic clinic. T. C. Hill and F. P. Williams—Diseases of the rectum. A. H. Crosbie and associates—Genito-urinary clinic. H. F. Perry and associates—Diseases of the skin. H. F. Perry and associates—2. Accidents and complications in treatment of syphilis; bone syphilis; epithelioma of the skin and its treatment by radium; carbon dioxide snow as a therapeutic agent.

LONG ISLAND HOSPITAL.

Wednesday, October 25.

John H. Cunningham and associates—9:30. Genito-urinary operations. John H. Cunningham and associates—2. Demonstration of genito-urinary cases.

Friday, October 27.

John H. Cunningham and associates—9:30. General surgical operations.

MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMARY.

Tuesday, October 24.

E. A. Crockett and associates—9. Ear operations. D. Crosby Greene, H. A. Barnes and associates—9. Nose and throat operations. G. S. Derby—9. Eye operations; ward visit; out-patient clinic. F. H. Verhoeff—9. Lantern slide demonstration of pathological specimens.

Wednesday, October 25.

D. H. Walker and assistants—9. Ear operations. F. E. Garland and assistants—9. Nose and throat operations. W. B. Lancaster, G. H. Ryder, and G. S. Derby—9. Eye operations; clinical demonstrations; ward visit; out-patient clinic. A. F. MacMillan—2. Demonstration of X-rays of mastoids and accessory sinuses. H. P. Cahill—2. Demonstration of normal histological and pathological sections, especially of the internal ear. Staff—2. Demonstration of clinical cases.

Thursday, October 26.

W. F. Knowles and assistants—9. Ear operations. C. B. Faunce, Jr.—9. Nose and throat operations. F. H. Verhoeff and S. J. McDonald—9. Eye operations; ward visit; out-patient clinic. H. P. Mosher, H. A. Barnes, and D. C. Greene—2. Demonstrations: End-results of tear sac operations; end-results of operation in cases of malignant disease of the accessory sinuses; a talk on the use of radium; end-results of cancer of the larynx. L. E. White—2. End-results of operations on the sphenoidal sinus. F. E. Garland and V. H. Kazanjian—2. End-results in cases of nasal deformity. H. P. Mosher, D. C. Greene, and D. C. Smith—2. Foreign bodies in the bronchus.

Friday, October 27.

Philip Hammond and assistants—9. Ear operations. H. P. Mosher and assistants—9. Throat operations. F. H. Verhoeff and W. B. Lancaster—9. Eye operations; ward visits; out-patient clinic. E. A. Crockett—2. Demonstration of cases showing end-results of brain abscess and meningitis. Philip Hammond, H. P. Mosher, and D. C. Smith—2. End-results in cases of radical mastoid operations. G. L. Tober—2. End-results of operation for sinus thrombosis.

NEW ENGLAND DEACONESS HOSPITAL.

Tuesday, October 24.

D. F. Jones—9. General surgical operations. D. F. Jones—2. Carcinoma of the rectum. L. S. McKittick—2. Radium treatment of carcinoma of the rectum.

Wednesday, October 25.

F. H. Lahey—9. Thyroid and general surgical operations. Elliot P. Joslin—2. Treatment of diabetes and its surgical complications.

Thursday, October 26.

F. H. Lahey—9. Thyroid and general surgical operations. F. H. Lahey—2. Clinic on thyroid disease. B. E. Hamilton—2. Cardiac complications of thyroid disease and diagnosis of thyroid disease. H. M. Clute—2. Postoperative care and complications of thyroid disease. L. F. Sise—2. Anesthesia in thyroid disease. Sarah M. Jordan—2. Basal metabolism.

Friday, October 27.

F. H. Lahey—9. Thyroid and general surgical operations. F. H. Lahey—2. Clinic on thyroid disease. B. E. Hamilton—2. Cardiac complications of thyroid disease and diagnosis of thyroid disease. H. M. Clute—2. Postoperative care and complications of thyroid disease. L. F. Sise—2. Anesthesia in thyroid disease. Sarah M. Jordan—2. Basal metabolism.

NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN.

Tuesday, October 24.

Isabel D. Kerr and Margaret L. Noyes—9. Nose and throat operations. Blanche L. Atwood, Olga Leary, and Mabel D. Ordway—9. Unusual case of glandular enlargement with marked hypertrophy of the breasts and mental symptoms.

Wednesday, October 25.

Elizabeth T. Gray and Florence Duckering—9. Gynecological operations. Marion Nute, Evelyn Lyle, and B. McW. Ryder—9. Obstetrical operations. Mabel D. Ordway—2. Neurosyphilis. Blanche Denig and Dr. Wright—2. Medical cases.

Thursday, October 26.

Lettitia D. Adams—9. General surgical operations. Isabel D. Kerr—9. Nose and throat operations. Staff—2. Obstetrical, prenatal, and post-natal cases.

FORSYTH DENTAL INFIRMARY.

Tuesday, October 24.

Percy R. Howe—9. Short talks on recent dental research. Elmer W. Barron and Herman Robbins—9. Pediatrics as applied to dentistry.

Wednesday, October 25.

William E. Cheney, E. E. Tilton, W. G. Funnell, A. A. Barrow, B. F. Murray and Louis Arkin—9. Adenoid and tonsil operations. Louis Arkin—9. Adenoid and tonsil operations. M. J. Eisenberg—9. Dental Orthopedics.

Thursday, October 26.

W. A. Gobie—9. Extracting. Percy R. Howe and Ruth E. Hatch—9. Dental research laboratory demonstration. Mary G. Jackson—9. Dental prophylaxis.

Friday, October 27.

F. M. Erlenbach—9. Dental clinic. Leroy M. S. Miner—9. Oral surgery. E. W. Barron and H. S. Robbins—9. Nutrition, pediatric clinic.

BETH ISRAEL HOSPITAL.

Wednesday, October 25.

Albert Ehrenfried and Carl Bearse—9. General surgical operations. Albert Ehrenfried—2. Hereditary deforming chondrodysplasia and certain allied growth distortions (with lantern slides). S. A. Robins—2. A consideration of the diagnostic points in the interpretation of abdominal X-rays.

Thursday, October 26.

E. G. Crabtree—9. Genito-urinary operations.

Friday, October 27.

Wyman Whittemore and Maurice Barron—9. General surgical operations.

CAMBRIDGE HOSPITAL.

Tuesday, October 24.

J. W. Sever—9. Orthopedic operations. A. H. Crosby—2. Genito-urinary operations.

Wednesday, October 25.

Albert August, E. A. Darling, A. W. Dudley, H. P. Stevens, and associates—9. General surgical operations. N. S. Bacon and E. J. Butler—2. Demonstration of nose and throat cases.

Thursday, October 26.

N. S. Bacon and E. J. Butler—9. Nose and throat operations. J. L. Huntington—2. Prenatal clinic. F. B. M. Cady—2. Neurological clinic.

Friday, October 27.

Albert August, E. A. Darling, A. W. Dudley, H. P. Stevens, and associates—9. General surgical operations.

COLLIS P. HUNTINGTON MEMORIAL HOSPITAL.

Wednesday, October 25.

Clinic by Staff—2. R. B. Greenough—The cancer problem. William Duane—Short wave length x-ray

therapy. Homer Wright—Free diagnosis service. William Bovie—New contributions of physics to biology. Channing Simmons—Radium in cancer of buccal mucosa and tongue. D. Crosby Greene—Radium in carcinoma of jaw and larynx. George Minot—Radium in Hodgkin's disease. G. G. Smith—Radium in cancer of the bladder. G. A. Leland—Radium in carcinoma of cervix. Ernest Daland—Radium in skin lesions, malignant and benign. Leland S. McKittrick—Radium in cancer of rectum.

Friday, October 27.

Clinic by Staff—2. R. B. Greenough—The cancer problem. William Duane—Short wave length x-ray therapy. Homer Wright—Free diagnosis service. William Bovie—New contributions of physics to biology. Channing Simmons—Radium in cancer of buccal mucosa and tongue. D. Crosby Greene—Radium in carcinoma of jaw and larynx. George Minot—Radium in Hodgkin's disease. G. G. Smith—Radium in cancer of the bladder. G. A. Leland—Radium in carcinoma of the cervix. Ernest Daland—Radium in skin lesions, malignant and benign. Leland S. McKittrick—Radium in cancer of rectum.

EVANGELINE BOOTH HOSPITAL.

Tuesday, October 24.

A. K. Paine—9. Prenatal clinic.

Thursday, October 26.

A. K. Paine and Stephen Rushmore—9. Gynecological operations.

Friday, October 27.

A. K. Paine and Stephen Rushmore—9. Gynecological operations.

UNITED STATES NAVAL HOSPITAL.

Tuesday, October 24.

Lieut. J. W. White—9. Orthopedic operations: Keller operation for hallux valgus; arthrotomy of knee for internal derangement; osteotomy for mal-united humerus; repair of finger tendon.

Wednesday, October 25.

Commander J. Woodward—9. General surgical operations.

Thursday, October 26.

Lieut. D. A. Hofferman—9. Eye, ear, nose, and throat operations. Various manifestations of syphilis from an ophthalmological standpoint; enucleations of tonsils; nasal septum corrections. Demonstration of aural cases of acute nasal sinusitis requiring operation.

Lieut. J. W. White—2. Hallux valgus treated by the Keller operation, end-results and x-rays. Recurrent dislocation of the shoulder treated by the Charnier-Ehrlich operation, end-results. Finger tendon repair, end-results. Malunion of femora treated by osteotomy, end-results. Generalized osteitis fibrosa treated by conservative means, end-results. Two cord injuries; one a persistent spastic hemiplegia, the other a complete recovery after a Brown-Séquard syndrome at the level of the sixth dorsal vertebra.

HARVARD MEDICAL SCHOOL.

Tuesday, October 24.

H. P. Mosher and C. B. Faucey, Jr.—2. Anatomical demonstrations. (Ear, Nose, and Throat Department.)

Friday, October 27.

Professors W. B. Cannon, L. J. Henderson, C. K. Drinker, and Drs. Alexander Forbes, J. C. Aub, and A. C. Redfield—2. Demonstrations and talks on various physiological subjects of importance in surgery. (Department of Physiology.)

Dates to be Arranged.

E. A. Codman—Registry of cases of bone sarcoma.

Correspondence.

THE PROPER USE OF THE HYPODERMIC SYRINGE.

PETER BENT BRIGHAM HOSPITAL.
Oct. 10, 1922.

Mr. Editor:

Apropos of the editorial on the "Lawful Possession of Hypodermic Syringes," in the BOSTON MEDICAL AND SURGICAL JOURNAL for September 21, 1922, it is quite evident that the Massachusetts law, there cited, works an injury to ill citizens of the Commonwealth. In the editorial a glandular product is cited as an example. Two such come at once to mind, pituitrin and adrenalin chloride. Pituitrin is the only known means of controlling diabetes insipidus, and in most cases must be given subcutaneously daily or twice daily. Adrenalin is more important. It often is the only means of controlling attacks of asthma. It is effective only if given subcutaneously. Asthma is a disease commonly met with. Often adrenalin must be used repeatedly. Frequently the asthmatic develops a severe paroxysm in the small hours of the night. Is it fair to him to so regulate matters by law that he must either have a nurse constantly on call or send for a physician, perhaps suffering prolonged discomfort because he must await while the physician dresses and travels to the patient? This is unnecessary expense to the poor, and needless discomfort to the rich, unless a nurse is taken out of general service-ability to be on hand to give the hypodermic of adrenalin when needed. (This, too, is undesirable in the community.) This law should be modified to permit of a physician not only prescribing drugs which require hypodermic injection, but also prescribing the syringe with which the patient takes the prescribed medicine. We know that use of hypodermic syringes by patients under these and similar conditions is safe, sane and desirable.

Very truly yours,
HENRY R. CHRISTIAN.

NOTICES.

THE JOINT MEETING OF THE PLYMOUTH, BRISTOL NORTH, BRISTOL SOUTH, AND BARNSTABLE DISTRICTS.

By invitation of Dr. Sumner Coolidge, this meeting will be held Nov. 9 at the Lakeville Sanatorium, Middleboro. Those who attended last year were graciously entertained, and those who could not be present missed an enjoyable and profitable meeting. The program will be published later.

BOSTON SURGICAL SOCIETY, INC.

A special meeting of the Society will be held at Jordan Hall, Huntington Avenue and Gainsborough Street, on Wednesday evening, October 25, 1922. Dr. William Williams Keen, Emeritus Professor of Surgery, Jefferson Medical College, Philadelphia, will give an address entitled "Sixty Years of Surgery: 1862-1922." On this occasion will be made the second award of the Henry Jacob Higelow medal.

WALTER C. HOWE, Secretary.

ROBERT W. LOVETT, President.

A joint meeting of the Worcester District and the Worcester North District Medical Societies will be held at Burbank Hospital, Fitchburg, Tuesday, October 31, 1922, at 4.30 p.m. sharp. State officers will speak on subjects of importance. Dr. John Bryant of Boston will read the paper of the day. Subject: "Hospital Convalescents." Buffet lunch. L. F. Baker, President. C. H. Jennings, Secretary.

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Hyannis,—November 3, 1922, February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol South District:—Fall River,—November 2, 1922, May 3, 1923.

Essex North District:—Haverhill, (Semi-Annual Meeting)—Jan. 3, 1923. Y. M. O. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Hampden Districts:—With Hampshire District in Holyoke. Regular meeting in October.

Suffolk District:—Combined meeting of Boston Medical Library and Suffolk District, November 22, 1922; December 27, 1922; January 31, 1923; February 28, 1923; March 28, 1923; Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District:—Meetings Wednesday, October 25, 1922; Wednesday, January 31, 1923.

Worcester District meetings in Worcester, Nov. 8, Dec. 13, 1922, Jan. 10, Feb. 14, March 14, April 11 and May 9, 1923, the last named date being the annual meeting.

A joint meeting of the Worcester and Worcester North Districts will be held at the Burbank Hospital, Fitchburg, Oct. 31, 1922.

A joint meeting of the Plymouth, Bristol North, Bristol South and Barnstable Districts will be held at Lakeville Sanatorium, Middleboro, on November 9, 1922.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

The American Association of Oral and Plastic Surgeons will hold their annual meeting at the Medical Library, Boston, on October 20th and 21st.

Clinical Congress of the American College of Surgeons will be held in Boston, Mass., on October 23-27, 1922, Franklin H. Martin, Chicago, Director-General.

Massachusetts Association of Boards of Health, October 26, 1922, Worcester, Mass., W. H. Allen, Mansfield, Mass., Secretary.

New York and New England Association Railway Surgeons, 32nd Annual Meeting at New York City, October 25, 1922, Donald Guthrie, Sayre, Pa., Secretary.

November, 1922. Massachusetts Society of Examining Physicians, (Date and place of meeting undecided), Hilbert F. Day, Secretary. National Cancer Week, November 12 to 18.

December, 1922. New England Dermatological Society Meeting, Wellesdale, December 13, 1922, at 3.30 p.m., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary.

January, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston, W. H. Allen, Mansfield, Mass., Secretary.

February, 1923. New England Dermatological Society Meeting, February 14, 1923, at 3.30 p.m., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

March, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary.

April, 1923. New England Dermatological Society Meeting, April 11, 1923, at 3.30 p.m., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston, W. H. Allen, Mansfield, Mass., Secretary.

May, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided). American Pediatric Society Meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind., H. C. Carpenter, Secretary.

June, 1923. American Medical Association, San Francisco, June 25-29, 1923, Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923. Massachusetts Association of Boards of Health, July 26, Nantasket, W. H. Allen, Mansfield, Mass., Secretary.

*Decreased Sept. 2, 1922.

The Boston Medical and Surgical Journal

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The Boston Surgical Society.

INTRODUCTION OF DR. W. W. KEEN.

By ROBERT W. LOVETT, M.D.,

President of the Boston Surgical Society.

At the Special Meeting of the Society, in Boston, on October 25, 1922, for the Presentation of the Henry J. Bigelow Medal to Dr. Keen.



The accomplished surgeon, wherever he lives and whatever his surroundings, must needs be a man of more than average ability. He must possess a sound knowledge of the science of medicine and, in addition

to this, he must be familiar with and adept in the handicraft of surgery. If he is to attain national or even international repute it is obvious that he must be endowed with characteristics and powers of a grade far above the ordinary allotment.

These characteristics are of two kinds, professional and personal. His professional attainments may be in general or special surgery, and in these he may reach eminence in one or more of several directions. He may be a successful and highly accomplished operator with a sound knowledge of the principles of general surgery which lie at the root of all practical surgical performance; or he may be a man, who by research can add to our surgical knowledge and thus to our efficiency in saving life and preserving function. He may be a distinguished teacher who possesses the faculty of stimulating the student and imparting to him a real knowledge of the principles and practice of surgery by teaching him to think instead of teaching him to remember. He may be a sound and clear writer who can assemble existing facts and add new ones from his experience in such a way as to raise the level of surgical knowledge and thus add to the efficiency of the profession. He may possess such rare qualities that he excels in more than one of these departments. So much for his professional qualifications.

With professional qualifications alone a man may go far in any of the lines mentioned, but if to these he adds personal qualifications of a certain sort he becomes a man of eminence and distinction. The required personal qualifications are possessed by nearly all really successful surgeons to a greater or less degree. They are cleanliness of mind and body, straightforwardness and honesty, squareness and unselfishness. If in addition to these he possesses fearlessness, vision and idealism, he becomes a man to whom we all turn and whose example and advice we follow.

Such a man has been invited by the Boston Surgical Society to address us this evening.

Address.

SIXTY YEARS OF SURGERY.*

1862—1922.

BY W. W. KEEN, M.D.,

Emeritus Professor of Surgery,
Jefferson Medical College, Philadelphia, Pa

Henry J. Bigelow I admired at a distance as a superior being, as was becoming in a student and young teacher. The older I grew and the more I knew, the more I admired him. Little did I dream, when I first opened Gray's "Anatomy" and Gross' "Surgery"—both quite new books in 1860—that I should ever have my name linked with those of Gray and Gross, and now, by your unexpected kindness, also with that of Bigelow. I thank you most sincerely for this great and unexpected honor.

While turning over in my mind several possible topics for this address, one of my eminent but younger surgical friends remarked that he knew only vaguely the condition of surgery at the time of the Civil War. This at once gave me my topic.

I began my medical studies in September, 1860, and graduated in March, 1862. Accordingly, I have selected as my subject—

"Sixty Years of Surgery
1862—1922."

As you shall see, I decline to be a champion of the Past—a *laudator temporis acti*. The rôle I assume is that of a Herald of the Dawn. This early dawn will surely brighten, in your day, into the full light of day. We hand you the torch of learning and bid you God speed. Take courage, you fine, younger fellows, my cherished colleagues in the profession. Free from the many handicaps of our preceding generation, you have the greater responsibility. But I am sure that you will more than measure up to it—that you will more than make good.

I shall rapidly sketch surgical conditions during the 60's and 70's; and cur then means and methods of surgical diagnosis and treatment. It is only by such a contrast and in some detail that one can appreciate the poverty of our knowledge and the meagreness of our resources in the 60's and your wealth of both in 1922.

This statement suggests a speculation as to what your orator sixty years later may have to tell. I dare not make the attempt; the actuality would doubtless put my prognostications to shame. Would that I could return in 1862 and

converse with the Bigelows, the Grosses, the Mayos, the Flexners and the Lovetts of that wonderful day!

In the 50's and 60's, medical students were in an early developmental stage, a good deal beyond the "Old Stone Age," of course, but with some of its feral antagonisms still manifest.

The police and the medical students were far more intimately acquainted then than now. The professors, too, were frequently obliged to mediate between them. Rather often one of the Jefferson Faculty was hauled out of bed to haul a student in turn out of the lockup.

Their belligerence may be judged by a story told me by Dr. Weir Mitchell. It must have occurred shortly before 1860. A young man desired to enroll with him as an "office student." In questioning him as to his educational qualifications, Mitchell fortunately asked if he had any "accomplishments," whereupon he put his hand to the back of his neck, drew forth a bowie knife, and, without a word, implanted it deftly in the frame of Mitchell's window between two panes of glass. It is needless to add that he was referred to a more martial preceptor.

Indian wars were almost constantly in progress and arrow wounds, therefore, were not uncommon. The first case I ever personally cared for was a Regular Army Officer, a patient of my preceptor, Dr. John H. Brinton. An arrow had penetrated deeply just below the left eye. Severe secondary hemorrhage from the internal maxillary artery—a very rare accident—required ligation of the external carotid.

In 1876, when "Sitting Bull" was on the war-path, our German governess, ignorant of the curious Indian names, came to me in great perplexity. "Herr Doctor," she said, "I cannot understand what my German paper says about a 'Sitzende Oehse.'" When one thinks of it, a bull sitting on its haunches like a dog would be a rather odd farm phenomenon.

Physiology was in an elementary condition; Pathology hardly existed. Gross' "Pathological Anatomy" (1839) was the first American book on that subject. My course of lectures at the Jefferson on "Pathological Anatomy," chiefly surgical and only in the "Summer Course" in 1866-67, was the first course ever given in Philadelphia. Tyson's course in General Pathology at the University of Pennsylvania began in 1879. Harvard founded a Chair of Pathology in 1847, but Surgical Pathology was first taught unofficially by Warren in the late 60's. The first official course in Surgical Pathology was authorized in 1897. A laboratory was added as late as 1901. At Columbia (then the College of Physicians and Surgeons), the lectures on Pathology and Pathological Anatomy were instituted in 1888.

In 1865-66, I was a pupil in Virchow's Laboratory, with his little railroad on the long,

* An address on receiving the Henry Jacob Bigelow Gold Medal of the Boston Surgical Society, October 25, 1922.

continuous table winding to right and left, to propel his microscopes from student to student. A year later, in the Philadelphia School of Anatomy and the Jefferson, I used a microscope on a horizontal wooden base, with a vertical stage between the lens and a kerosene lamp. This was passed from hand to hand. *Per contra*, almost all of you are contemporaries of the epidiascope and the projectoscope.

Artists for medical drawing were scarce, and by reason thereof, and also of the *res angusta domi* of a young doctor, I made my own, copying them from Paget, Virchow, Billroth, etc. Even in our text books, crude wood-cuts were the best illustrations we knew. The splendid illustrations of to-day were far away. The "American Text Book of Surgery" (1892) was one of the earliest to utilize the new school of artists.

Spontaneous generation was then the battlefield. Just after the Civil War, in Paris I was a pupil of Pouchet fils, whose father was Pasteur's teneacious opponent, so that for the time, I was near the center of that long and bitter fight. Experiment after experiment seemed to prove the truth of spontaneous generation, but Pasteur always found the weak spot in the experiments of Pouchet and others, and dealt a death stroke. By the 70's, spontaneous generation was as dead as Julius Caesar.

Evolution and Darwin's "Origin of Species" (published in 1859, the year I graduated at Brown), had caused a volcanic explosion which gradually subsided save for sporadic eruptions. The reemergence of this fight fifty years later is a curious but surely only a passing phenomenon.

Clinical surgery was well established in 1860, but it was very crude and simple. We had two clinics each in Medicine and Surgery on Wednesdays and Saturdays. Whenever there was a capital operation to be performed, such as even an amputation of leg or breast, it was known beforehand and then we all rushed to get front seats, as described in that medical classic, "Rab and His Friends."

Thank God, in the 60's we had one great boon—Anesthesia! My elders have described to me the horrible ordeal an operation was for patient, surgeons and witnesses before 1846. The screams and struggles of the patient were heartrending. To add to the horror, the then means for checking hemorrhage were primitive and largely ineffectual. The operating room resembled a slaughter house.

Observe the influence of the "Death of Pain," as Weir Mitchell justly called the result of the introduction of anesthesia. In the five years (1841 to 1846) in the Massachusetts General Hospital, only 184 operations were done; that is, 37 in a whole year, or three a month. Now, in any large hospital a score every day excites no remark.

Boston is rightly proud of her preëminence in the introduction of anesthesia. October 16, 1846, is a red-letter day, not only in the Annals of Surgery, but in the Annals of Mankind.

In December, 1847, Sir James Y. Simpson, of Edinburgh, first used chloroform. For years those two were the only anesthetics. Only for a few years have we had instruments of precision to measure accurately the dose of these anesthetics.

In 1884, local anesthesia by cocaine was introduced by Koller. The number of the local anesthetics is now large, and the end is not yet.

In 1909-10,¹ Meltzer and Auer introduced Insufflation Anesthesia, a great improvement in special cases.

Nitrous oxid, a long-established anesthetic for such brief operations as drawing a tooth or opening an abscess, later was combined with oxygen, and, largely through the efforts of Crile, the further combination of these two with novocain, or other local anesthetic, has been a most important advance, greatly reducing shock and mortality.

In the 60's, assistants in the dissecting room often came directly to the surgical clinics to assist in the operations, soap and water being the only disjunctive conjunction, for we knew nothing of germs and germicides. The same revolving table was used for the cadaver in the lectures of the Professor of Anatomy, and for the surgical operations in the clinic. The surgeons—Pancoast, Gross and all the others—operated in discarded, blood-stained coats, the veterans of a hundred fights.

There were no ward classes. Students only looked on at operations. Had I not been a private "office student" with Brinton and DaCosta, I should never have palpated, ausculted or percussed a patient's heart, lungs or abdomen, never have looked through a microscope, even then an infrequent privilege. No medical college had a microscope for instruction.

The microscopes of that day were far behind those of to-day in mechanical construction. There were no oil immersion lenses, no dark field illumination, no ultra-microscope. The only stain was carmine, followed by acetic acid to clear the specimen. There were no compound stains.

The whole teaching Faculty consisted of seven Professors and one Demonstrator (Anatomy).

All the sacred seven courses began at once. Hence, in my first surgical lecture, I heard about blood corpuscles and capillaries which I had never seen, and the buffy coat, of which my only idea was that it could not be an article of apparel, but had something to do with the blood. Even now I would not covet a too minute examination as to the said buffy coat. Forgive

¹ Medical Record, N. Y., March 19, 1910, p. 411.

me if I suspect that you, too, might pass by only a narrow margin.

The first operation I ever saw was removal of an upper jaw by that prince of operators, Joseph Pancoast. It is always a rather bloody one. I had just swallowed my luncheon. By throwing out all my grappling hooks, I barely succeeded in holding it down.

At the Jefferson, we had two rooms, with five or six beds each, for the most serious cases, over a saloon conveniently adjoining the College. When Gross reached his lecture on Suppuration, he usually said to the orderly, "Hugh, go over to the hospital to-morrow morning and get me a half tumblerful of pus for my lecture." He might well have been less modest as to the amount, for "laudable pus" was "on tap."

Save the dissecting room, not one laboratory existed. Now at the Jefferson we have eighteen laboratories.

The very first Laboratory of Research in the United States was established in 1884 by Mr. Carnegie, in connection with the Bellevue Hospital Medical School. The Blue Cross has recently published a list of eighty-six such laboratories, all doing fine work for science, for animals, and for mankind.

As late as the 80's, and even into the 90's, there were, in most hospitals, no trained nurses. The nurses were chiefly women of very moderate intelligence who had gained experience by the rough method of "trial and error," and the "error" might easily have been in your own case or in that of one very dear to you. If so, your fervent prayers were sorely needed.

Hospitals were then avoided as if leprous, instead of being our best refuge. The wards were full of fear and not seldom of despair, instead of, as now, of hope and alert expectation of recovery.

Even the surgeons themselves were none too well trained. I well remember, at the First Bull Run, when I was but a First Lieutenant, and had not even graduated, but had already been well trained by Brinton in operative surgery, I was holding an arm for an amputation at the shoulder joint. The operator's assistant, a Major, was vigorously compressing the subclavian artery *below* the clavicle. I felt compelled, for a life was at stake, to intimate very modestly that possibly the pressure might be more effective *above* the clavicle. He turned upon me a withering face and voice and said, "The very name of the artery is *subclavian*," leaving me wilted but not convinced. When the operator divided the great blood-vessels in the armpit, a violent gush of blood followed, which I quickly arrested by seizing the severed vessels, as Brinton had taught me.

On another occasion during the Civil War, as the surgeon I was assisting in an amputation of the thigh was about to sharpen the stump

like a lead pencil by cutting the flaps upward, I averted disaster by suggesting, very *solito voce*, the reverse direction for the flaps, and this time was thanked for it.

The only speculum we had in common use to examine any internal organ was that abomination, the tubular uterine speculum.

Many surgeons had handled kitchen spoons, but it required the "prepared mind" of Marion Sims in 1849 to transform such a spoon into a wonderful surgical aid by simply bending the handle. But it did not come into general use for some years. The bivalve speculum came still later.

Helmholtz had devised the ophthalmoscope in 1851; Czermak, the laryngoscope in 1860, but so slight an impression had the latter made that when I asked my preceptor Da Costa, in 1861, what he thought of the statement of Green of St. Louis that he actually could see the vocal chords, he replied in a doubtful tone that he "thought it might be true." But I never saw them myself until after the Civil War.

Similarly, the medical use of the thermometer was practically unknown. We judged of fever by placing the hand on the arm or neck. But we never estimated it in degrees, only in adjectives as "none," "slight," "considerable," "high" or "very high." I doubt if there were half a dozen thermometers in the Army of the Potomac. Mitchell, Morehouse and I had to import those we used in Turner's Lane Hospital in 1863-64.

The first book on Medical Thermometry was published by Wunderlich in 1863. The first short "Clinical Thermometer" (devised by Sir Clifford Allbutt in 1867) I ever saw, was brought to me from London in 1876 by Weir Mitchell.

Imagine the mother of half a dozen children to-day without a thermometer as a guide to whether the doctor should be called!

To-day we all recognize the scientific value of the thermometer, but we sometimes overlook its value to the doctor as a life preserver against the garrulons. In severe cases of loquacity, I have known a certified one minute thermometer to require even more than five minutes to reach its acme of accuracy!

Again, you are the contemporaries of Radium, which gives promise of great usefulness, and of the X-rays. You know the value of these rays in diagnosing fractures, foreign bodies in the heart, lungs, intestines, and the tissues, and in the diagnosis of cancer of the stomach and bowel, and the arrest of their contents by any obstruction. Now you can even see a sclerosed artery in its course down the arm. Cerebral Ventriculography was unknown until 1919.

Of the blood, our knowledge was most primitive. We knew its two kinds of corpuscles, but nothing of leucocytois in its relation to inflammation, or of the four different categories

of blood. Blood was simply "bloo l." We knew nothing of the color index, nothing of blood pressure (save as inaccurately estimated by the pulse), and its great importance in operative surgery. The electro-cardiograph was not even a dream.

In 1866 I visited Marey's laboratory in Paris to learn how to use his lately devised Sphygmograph. He tested my own pulse and told me it was weak. But time has shown that what it has lacked in vigor it has made up in pertinacity.

We had no knowledge of test meals. The stomach tube was practically used only in cases of poisoning. To-day, Charles Mayo writes: "I should prefer to see a stomach tube rather than a stethoscope hanging around the neck of my surgical intern."

I have a vivid recollection as a lad of my reluctance to acknowledge that I felt "sick" until I *had* to, because it meant invariably the nausea following a horrid home emetic and then the bitter epsom salt or castor oil—ugh! One of the advantages of Gross' famous "Antimonial and Saline Mixture" was that the two enemies went down arm in arm at a gulp.

Practically *every* patient in the hospital wards was taking alcohol. One of the staff of the Pennsylvania Hospital recently told me that now only two patients in his present large service were getting any alcohol, and he was in some doubt of its wisdom even in these two.

Here I must stress the chief advance in scientific and practical surgery ever made—the development of Bacteriology and its application to surgery by the antiseptic method of Lister.

Vaccination (May 14, 1796), Anesthesia (October 16, 1946), and Antisepsis² are the three greatest blessings in the realm of medicine conferred on man since the Christian era began.

Pasteur's work was fundamental. Lister's genius applied Pasteur's discoveries to surgery. This wrought the greatest revolution surgery has ever witnessed. The Germ Theory of Disease is no longer a theory, but an abundantly proved *Fact*. Those who deny that the Tubercle bacillus, the Typhoid bacillus, the Diphtheria bacillus, and other germs, do not cause the diseases named, have minds that are simply impermeable to any arguments addressed to reason or common sense.

Originally, the antiseptic ritual was complicated, now it is very simple. At first, the germs in the atmosphere were believed to be our chief enemies. Now we know that they exist on every material object, and that death hides especially under the shelter of the surgeon's finger nails. They exist on the skin of doctor, nurse and patient, on instruments, dressings, ligatures, in unboiled water and other fluids, and are carried by many animals and insects. In fact, deadly

germs are ubiquitous. *Everything* needs to be disinfected before the operator, assistants or nurses dare touch it or allow it to touch a wounded surface. All of this knowledge has been achieved since 1867.

While I was writing this, a non-medical friend told me that the birth of one of his children occurred unavoidably in the country. When the doctor, a dear old man beloved by the whole community, arrived, the nurse offered him a basin of bichlorid solution for his hands. He declined it, saying, "No thank you! I don't need it. I washed my hands just before I hitched up my horse." "The date?" you ask. Nineteen hundred and three. You and I may smile at such ignorance, but, in all soberness, may not this explain some needless tragedies of maternity in 1923?

No one particular year can be assigned as the date of the introduction of Antisepsis. Pasteur's famous papers on Lactic Acid Fermentation and on Alcoholic Fermentation were read in August and December, 1857. Lister's first paper was published in 1867. Bacteriology and Antisepsis went hand in hand. They had to fight for their lives. Their chief opponents, I am sorry to say, were the ultra-conservative surgeons. False friends betrayed them. Argument assaulted them. Ridicule tried to discredit them, as when one well known and able surgeon declared that he "stood at a distance and east septic glances at the patient."

But Bacteriology and the Antiseptic Method marched steadily onward and finally won all the world by the late 70's and early 80's, saving a few fossil doctors and the ignorant antivivisectionists. Asepsis was a natural development. The scientific basis of both Antisepsis and Asepsis is identical, the only difference is the means by which to attain the same end.

Until the 80's or 90's we had no vaccines against the various disease-producing germs. Smallpox was the only enemy we could combat by vaccination. Even today we do not know its cause. That is a problem for *you* to solve. We had no serums. We knew not how to prevent tetanus, diphtheria, malaria, yellow fever and other diseases, of which we have now the whiphand.

Surgical tuberculosis could not be definitely diagnosed in bones, joints, or in what we called "scrofula," because we knew not the real cause of tuberculosis until 1882. Not knowing the cause we could not know that tuberculosis was contagious and was spread by spitting, coughing and in food. No protective measures for the well were even thought of. The consumptive was thought to be doomed (and in fact was doomed) from the moment the diagnosis was made.

In a word, we had no knowledge of Bacteria and Bacteriology. That science was fragmentary even down to 1884, by which time it had

² Under Antisepsis I mean, of course, to include Bacteriology. In reality, Antisepsis and also Sanitation are largely "Applied Bacteriology."

become systematized and first acquired its name.

We knew nothing of endocrine glands and their important functions—nothing of hormones and their mechanism.

Of course, we had no Schick test, Noguchi test, Pirquet test, Wassermann reaction, etc. We knew nothing of the spreading of diseases by the fly, the flea, the mosquito, the louse, the rat, the cattle tick—and hence we could not take any protective and preventive measures against them.

The whole human race and our animal friends were besieged before and behind, on the right and on the left. We were not only defenseless, we were not even aware that these enemies existed.

The only barrier which could be erected was a quarantine against those persons and goods which might carry infection. It was believed that clothing, bedding, etc., could carry the infection of yellow fever. Quarantine at first meant forty actual days (*quaranta*) of detention, often under disgusting and sometimes brutal conditions, sometimes with shot guns ready for any attempt at evasion, and it was useless as we now know.

Our then so-called sanitation was ineffective because our real enemies—the bacteria—were unknown. Now sanitation is our principal reliance because its sound basis is Bacteriology.

The operative surgery of my surgical youth consisted briefly of—

- (1) Amputations, most of which we can now avoid
- (2) Ligation of arteries, especially for aneurism and secondary hemorrhage
- (3) Occasional excision of joints—not seldom fatal
- (4) Removal of external tumors, such as cancer of the breast
- (5) Ovariectomy. But this was not done until the tumor was so large as to imperil life.³

Surgeons who removed ovarian tumors were persecuted. As a student, I even heard them called murderers in the Jefferson Clinic because "two out of three of their patients died." It ought to have been worded, "one out of every three recovered," for every recovery was a rescued life.

In 1846, Mütter, one of my predecessors in the Chair of Surgery, said, "It is certainly hazarding but little to assert that in a very few years ovariectomy will be assigned to the oblivion it so well merits." Now, thanks to McDowell, the Atlees, Pasteur and Lister, and many others, the mortality is less than one in a hundred.

³ As an instance of this delay, years ago I removed a huge ovarian tumor, which weighed 111 pounds, from a young girl not yet 15 years of age. After her recovery she herself—that is what was left of her—weighed only 68 pounds. Dr. Freeman, my son-in-law, when I told him of this, lifted a warning finger and said, "Father Keen, Father Keen, be very careful or some day you will throw away the wrong piece."

In 1876, in reviewing American Surgery for the preceding century, Professor Samuel D. Gross could only quote⁴ seven operations for goiter by Greene of Portland, Maine, of whom five recovered and two died, and Maury's two cases, of whom one died, a mortality of respectively thirty-five and fifty per cent.

Of 1834 cases of operation on all varieties of goiter in the Mayo clinic in 1919, only twelve died, or two-thirds of one per cent.

6. Cutting for stone in the bladder had long been done. The method of performing lithotomy, in my early surgical days, was a legacy from pre-anesthetic days when speed was essential on account of the horrible pain. It was like the "hundred yard dash." Surgical guests (for it was a "show" operation), as well as students, watch in hand, timed the operator. He who could triumphantly hold up the culprit stone in the grasp of his forceps in ten or fifteen seconds less than any rival, was by so much the better surgeon. When every moment was like an hour of agony, no wonder that such "slap dash surgery" was imperative. Even a tyro can see that all our finer, delicate, painstaking and artistic surgery was impossible when a patient, bound hand and foot and also held in the grip of several strong men, was unwillingly but unavoidably writhing with excruciating pain. Prolonged pain also exhausted the patient and was a serious addition to the probability of death.

In 1878, Bigelow introduced litholapaxy, *i.e.*, crushing of the stone and evacuation of the fragments, at one sitting,—an immense forward step.

7. In 1867, Bobbs of Indianapolis was the first surgeon who ever removed gallstones from the gall-bladder. Before that other similar sufferers were left to Mother Nature and she generally slew them in due season.

8. In my student days I often saw couching for cataract, *i.e.*, pushing the opaque lens down into the vitreous done by Pancoast and Levis, both general surgeons—how horrible that sounds to us to-day! The oncoming flags of Ophthalmology and the other several specialties were then just becoming visible above the distant horizon.

9. On the head, the chest and the abdomen was writ large, "Hands off!" And no wonder! Before the days of Lister, death from meningitis, from violent pleurisy or pneumonia, and from virulent peritonitis was almost always the result of any operation in these three cavities.

Even the cause of appendicitis—then called "perityphlitis," "local peritonitis" or "abscess in the right iliac fossa"—was not known till Fitz's epochal paper in 1886 revealed the appendix as the real criminal.

⁴ American Journal of the Medical Science, January, 1876, pp. 431-484.

10. One strange exception was trephining. Archeologists have found even prehistoric skulls with multiple trephine openings in the same skull, the margins of the openings in the bone from previous operations being soundly healed. Trephining in my early surgical days was practically limited to compound depressed fractures of the skull with a large mortality.

11. There was occasional plastic surgery, especially in the making of new noses from the skin of the forehead, but the frequent failures left the patient still without any nose and with the unwelcome acquisition of a most unsightly scar on his forehead.

12. Before 1895, Tracheotomy for diphtheria,⁵ then called "membranous croup," was a frequent tragedy. How often I have stood, knife in hand, awaiting the decision of the agonized parents. Not only they, but I, too, knew by an only too frequent dread experience, that grim death was awaiting his almost assured victim.

In 1895, the blessed antitoxin was discovered and, presto! as if by magic, tracheotomy for diphtheria became infrequent, and for years past, one may say, has been unknown! Never can I forget, when I was twelve years old, the death of a darling younger brother who was allowed to be choked to death before our eyes by this now almost vanquished monster.

13. Operations for the radical cure of quiescent hernia were rarely done. They were often a failure, and always a danger. When a hernia became strangulated, its reduction by manipulation was first tried, and was often repeated two or three times under ether. Even if ultimately apparently successfully reduced, we took the chance of a reduction *en masse* with still persisting strangulation, or of a possibly gangrenous condition of the bowel promoted by the repeated manipulation itself.

To intestinal obstruction proper, Gross' "Surgery" in 1859 gave only two-thirds of one page. He said, "Internal strangulation is generally a fatal disease, its very obscurity forbidding interference." Why did he not advocate opening the abdomen quickly, before great damage had been done, and dispel this "obscurity" by the light of day? Because Bacteriology was yet unborn, because Pasteur and Lister had not yet, by experimental research, made abdominal operations safe.

What, then, was the treatment Gross and Erichsen's contemporary text-books in 1860 suggested? Let me recount it to your astonished ears! Calomel and opium, leeches, fomentations which sometimes, they said, relieved "even the most hopeless and complicated cases." If not, then "after three or four days" one might operate. Today, thank God, sharp steel quickly lays bare the cause, and provides the life-saving procedures at once.

Our methods of performing these dozen operations were simple—and often fatal. Our hands were, as a rule, as clean as those of a gentleman, but were never disinfected. The patient's skin was similarly clean or cleansed, but not disinfected.

For preventing hemorrhage we had only the Spanish windlass and Petit's tourniquet—no Esmarch's bandage, and elastic tubes.

Our instruments, from germ-gathering, velvet-lined cases, were laid out on a table—and not disinfected. If they needed a little sharpening, I have—not often, but actually two or three times—seen them stropped on the boot, and even on its sole. If an instrument fell on the floor, it was swished in a basin of unsterilized water, and plunged into the wound without disinfection.

We had no artery forceps, hence, primary hemorrhage was profuse. It was arrested by seizing artery after artery separately by a tenaculum—a hook with a handle—and tied with undisinfected silk. One end was cut short, the other left long. All these long ends were gathered in one or two bundles, and left protruding from the wound. After amputation of a fleshy thigh, I have seen twenty or thirty of them. The two or three ligatures on the larger vessels were identified by a knot, the largest by two knots. After a few days, each non-knotted ligature was pulled upon to ascertain whether it had rotted—mark the word—rotted loose. No traction was made on the knotted ones for a week or more. When they came away, if a clot had formed, well and good. If not, then a furious secondary hemorrhage followed, and often required the reopening of the wound to tie the artery again, or its ligation by a new incision higher up, or even a re-amputation. Sometimes the patient died almost immediately. In 2235 cases of secondary hemorrhage during the Civil War, 61.7 per cent. died.

During one night, when "Officer of the Day" at the Satterlee Hospital, ten days after Gettysburg, I was called to treat five cases of secondary hemorrhage and, I am glad to say, saved five lives. This was a larger number of such cases than I have seen in all my thirty-odd years of later antiseptic practice.

In 1869, Lister introduced absorbable catgut ligatures. They gradually won their way into favor. Now, as you well know, we cut both ends short, and close the wound entirely. This is usually followed by immediate healing, and we never hear of the ligatures again.

We had no modern retractors; the hypodermic syringes, and the aspirator were not in general use. These came into common use toward the end of and after the Civil War. The systematic use of the hypodermic syringe at Turner's Lane Hospital by Mitchell, Morchouse and Keen was exceptional.

⁵ So called from the tough "leather" like membrane, which forms in the throat and extends into the windpipe.

Only marine sponges—round, flat, and “elephant-eared”—were used, both in clean and in suppurating cases! After using them in pus cases, we did wash them as thoroughly as possible, but knew not how to disinfect them. In fact, “disinfection” was a word unknown in the language of surgery in the 60’s. Gauze “sponges” came into general use, as nearly as I can remember, in the late 70’s or early 80’s.

How were our wounds dressed? Take an amputation as a sample. Simple cerate was spread on a square of patent lint or on any old linen sheet, shirt, etc., clean but undisinfected. Then, by cutting from the four corners part way towards the center, we made a sort of Maltese cross. This was applied “cup-wise,” one might say, to the stump, and covered with clean linen rags held in place by a recurrent bandage. This was pinned on, as we had no rubber plaster. The first “absorbent cotton” I ever saw I bought in 1876 at the Centennial Exposition. The amputation was redressed daily, and when “laudable pus” began to flow freely, twice or thrice daily.

On the second or third day the patient became restless and sleepless from pain and thirst, with a temperature, as I now judge, of $103\frac{4}{5}^{\circ}$. In a week to ten days, when free suppuration set in, the fever fell to probably $100-101^{\circ}$, the appetite would improve somewhat, and sleep would be bettered; hence, the adjective “laudable.”

If all went well, the wound would be healed in four, five or six weeks. But very often all did not go well. Secondary hemorrhage, erysipelas, gangrene, blood poisoning would develop, and then the patient who escaped with life, after two, three or four months, was fortunate. The many ligatures, until they sloughed away, caused constant suppuration, with constant danger of blood-poisoning. The mortality was dreadful, as compared with our present almost certain recovery.

My happy, younger surgical colleagues, you cannot imagine the Paradise you have been born into, compared with the Purgatory in which we lived for so many years.

In dislocations of the hip, and sometimes of the shoulder, the barbarous block and pulley were used. They could apply great force. In the old Jefferson amphitheater there were heavy hooks opposite each other for using this apparatus. The patient was anesthetized and laid on the floor. A strong perineal band, to hold the patient in place, was fastened to one hook, and the pulley to the other. By stout linen bandages or a broad leather band, the pulley was then fastened to the leg or arm, and then tremendous force was applied till it seemed as if the leg or arm would be literally torn away from the trunk. What a blessed relief your own—may I not now say our own—Bigelow (1869), and

later Kocher and others brought to these unfortunate patients by using gentle manipulative methods based on anatomical and surgical studies and experiments, in hip and shoulder dislocations!

More than once, too, in Paris, I saw tumors removed by Chassaignac’s “Eraseur.” A strong wire or linked steel chain encircled the base of the tumor, and passed through a small opening. Gradually, by the handle, the wire or chain was screwed tighter and tighter until it mechanically crushed its way through the tissues. You may thank God you never saw such diabolérie.

Fractures of the base of the skull were almost uniformly fatal, because we had no means of disinfecting the eropharynx. Indeed, we did not even know that such disinfection was either needful or possible!

Look up what Gross and Eriksen, in 1859, say about “Mastoid Disease.” You will look long and look in vain.

Sir William Macewen of Glasgow, the protagonist of cerebral surgery, and happily still living and working, has given an authoritative chronology of its beginning in his presidential address before the British Medical Association on July 25, 1922.*

His opening words, “In my student days physiologists taught us that the brain acted as a whole,” vividly recall to my mind the notable symposium on Cerebral Localization, in Washington at the First Congress of American Physicians and Surgeons in 1888. Among the speakers were Charles K. Mills, Roswell Park, Allen Starr, Robert F. Weir, Dr. (now Sir) David Ferrier and Mr. (later Sir) Victor Horsley, both of London, and myself.

I then compared the head with the abdomen, each containing a number of viscera, wholly separate physically in the abdomen, but in the head physically fused into one mass—the brain—but separable physiologically and pathologically. This is today commonplace, but then was a novelty.

In 1867, Hughlings Jackson had foreshadowed cerebral localization. In 1870, Fritsch and Hitzig had applied electricity to the brain of dogs. In 1883, Ferrier† had emphasized the idea of cerebral localization of functions, and had urged surgical interference in proper cases. The *Lancet* (Nov. 10, 1883), in a long two-page editorial, rejected this proposal, and closed with these words: “If Dr. Ferrier’s suggestions meet with much practical response, it is to be feared that cerebral localization will soon have more deaths to answer for than lives to boast of.”

Yet Macewen, in his address, states that, in 1879 a cerebral tumor had already been diag-

* *Brit. M. J. Journal*, July 29, 1922, p. 195.
† *Medico-Chirurgica Transactions*, 1884, p. 33.

nosed by this means, and successfully removed by operation, and several others also had been operated on up to 1883. Apparently, this was not generally known. Horsley's paper on the Topography of the Cerebral Convolutions⁹ was to me a revelation as novel and illuminating as the mapping of Central Africa by Livingstone and Stanley. All of these motor centers have been determined by experiments on animals, confirmed later by clinical and pathological data in man.

I embodied the contents and the illustrations of Horsley's paper in my edition of Gray's "Anatomy" (1887). Also, at the Congress in 1888, I presented the three specimens, and the three patients constituting my first three cases of modern cerebral surgery, all diagnosed absolutely by cerebral localization. My very first case was that of a large tumor, removed in December, 1887. This patient lived until 1917, thirty years after operation. During all of that long period he had lived with no roof to his left lateral ventricle save the scalp.

To name even a partial list of our own colleagues who have contributed to the development of cerebral surgery is impossible for want of time. But all of us will gladly pay tribute to the eminent services of your distinguished townsman Harvey Cushing.

In 1888, Gowers' and Horsley's paper¹⁰ describing the first localization and subsequent removal of a tumor of the spinal cord, was a momentous forward step.

The institution of drainage for empyema in 1854, by Henry I. Bowditch, your own distinguished townsman, was a wonderful boon. The modern, open treatment of surgical affections of the lungs and pleura, needed the Great War to develop its greatest usefulness.

Chevalier Jackson—who has created and developed a wholly new department in Surgery, removal of foreign bodies in the air passages and the esophagus through the mouth—was not born till 1865. Tracheotomy for such foreign bodies disappeared when Jackson waved his magic wand. Foreign bodies, such as coins, etc. if swallowed, it was hoped, would pass, and if they did not, rarely indeed was any surgeon bold enough to remove them by operation in that day of infection and death.

Even in gunshot, stab, and other similar wounds, in which the three forbidden cavities were already opened, we operated reluctantly, and with a timidity justified by the lethal results.

So far in this rapid review, I have told you what we *dared* not do and *could* not do in the past. Let me now swiftly recount by glorious contrast some of the things that we now *can* do, what in fact are *almost a daily routine* in every great hospital.

After a single battle in the Russian campaign.

Larrey, Napoleon's great surgeon, performed not less than 200 amputations. Today, of 200 similar cases, sometimes even with wounds involving joints—a great additional danger—we can conserve the majority of these useful limbs without amputation.

External tumors of any size are now removed from all parts of the body without fear of a frequently fatal erysipelas, which a century ago so worried Sir Astley Cooper before he operated on the King for a simple wen.

The mere fact that any tumor is internal—inside the head, chest, abdomen or pelvis—has little influence on the decision whether it should be removed or not.

In the head, the new surgery trephines without hesitation, for trephining *per se* now involves very slight danger. Tumors of the brain are removed, abscesses opened, the ventricles are punctured with impunity or distended with air for diagnostic purposes. Foreign bodies are removed and the Gasserian ganglion, and even the hypophysis and the pineal gland are no longer beyond the surgeon's reach. Spinal tumors are now exactly located, and are constantly removed.¹¹

I have already given you the data for goiter and tracheotomy for diphtheria.

In the chest, that very citadel of life, the heart lies in a straight line only one inch from the surface, yet, as Frederic Lee has strikingly said, it took surgery, with laggard step, twenty-four centuries to travel that one inch. Now, the heart is sutured for stab and gunshot wounds, with a recovery of over 50 per cent. Foreign bodies, revealed by the uncanny x-rays, have been removed even from its interior.

As I am writing this, Allen and Graham¹² have shown that in dogs it is possible to make a small opening into the cavity of the left auricle of the heart, insert a small tube with a lens at the further end, illuminated by an electric lamp, and study—not in less than three minutes, as heretofore, but at some leisure—the condition of the mitral valve, and, by a delicate knife, operate upon the valve itself. The mortality in the dogs, of course, has been high, but certainly will be greatly lessened with a larger experience. I fully expect that in time this method may be made safe enough to be applied to man himself. And yet there are those who wish to prevent such a beneficent research!

The esophagus is attacked for cancer, large portions of the chest wall are excised, foreign bodies removed, and the lungs can now be operated on at leisure, thanks to insufflation anesthesia!

The stomach is opened with impunity for the extraction of foreign bodies; portions of its walls are removed for cancer, and for ulcers,

⁹ American Journal of the Medical Sciences, April, 1887, p. 312.

¹⁰ Medical-Chirurgical Transactions, lxxi, 1888.

¹¹ Frazier and Spiller alone have just recorded fourteen such cases—Journal of the American Medical Association, September 23, 1922.

¹² Journal of the American Medical Association, September 23, 1922, p. 1028.

to prevent these latter from developing into cancers; even the entire stomach has been removed, and at least temporary recovery has followed. Early operations may hereafter enable us to say permanent recovery has been achieved.

As to the intestines, we have yet to find any condition or injury which prohibits our interference, and nearly always with success, unless the disease has gone too far, and the injury is too extensive. We open the bowel to remove foreign bodies which, if they have escaped us in the esophagus and the stomach, become our prey in the bowel. We remove even many feet of the bowel, and, unless the removal is too extensive, without any appreciable effect on the political economy of the abdomen. When we have abstracted a part, we unite the two open ends of the bowel, and thus re-establish the continuity of the alimentary canal. Of this, happily, after even eleven years, I am, myself, a surviving, grateful witness.

We short-circuit the intestinal contents. We remove the appendix almost "while you wait." If done early, its mortality is negligible. If the appendix is healthy, we can utilize it as a means for irrigating an inflamed colon.

Hernia is now a curable condition, with no appreciable mortality. Strangulated hernia and intestinal obstruction, if quickly operated on, have now only a small mortality.

We remove tumors of the liver, and successfully treat wounds of its substance. Gallstones and even the entire gall-bladder are removed every day or two. In one case I removed 301 gallstones. That last one I was particularly glad to find, and record as a proof of meticulous truthfulness.

The spleen is anchored, sutured, or even removed at will. We wonder why there should be any appendix, gall-bladder or spleen, for the patients seem to get along quite as well without them as with them. Possibly they persist by the forgetfulness of some animal ancestor; and incidentally, for the benefit of us surgeons.

The pancreas is no longer inaccessible; the kidney is sutured in place, drawn outside the body for inspection, deapsulation, or incision if, as the x-ray will have informed us, there are stones in its interior. A portion of the diseased kidney can be removed, or even one entire kidney, if hopelessly damaged by disease or accident. Stones in the ureter are also readily removed.

In the pelvis, the bladder is opened to remove stones or for tumors, and may be partially or wholly removed, in which case the ureters are made to débouche into the bowel. Removal of the prostate is almost an everyday operation, for which the aged patients are most grateful for their relief in most cases from intolerable suffering. The uterus, ovaries, and the parovaria have a long list of life-saving, comfortable operations to their credit.

Was I not right when, years ago, I called the abdomen "the surgeons' playground"?

Listen again to Charles Mayo, in 1922: "In many years of active surgical work I have not seen death occur as a result of an unnecessary [abdominal] exploration . . . but many have died solely because exploration was done too late."

We suture and anastomose nerves or divide their roots, even within the spinal canal. We suture blood-vessels, even in the new-born, in case of life-threatening hemorrhage. We criss-cross arteries and veins to prevent gangrene, and Matas' endo-aneurismorrhaphy has saved many a limb.

We successfully transplant skin, bones, joints, and even half-joints—a much more difficult procedure.

We are gradually throttling disease at its very birth, and preventing its onslaught upon the health of the world.

I end as I began. As a representative of the passing, and at my age I may say the past generation, with uplifted hand I thank Almighty God for the wonderful progress He has enabled our generation to achieve. I leave for you, my younger brothers, His abundant blessing. To you may it be vouchsafed to win still greater victories for Humanity.

New England Hospital Association.

ANNUAL MEETING WEDNESDAY, MAY 17, 1922, AT BOSTON MEDICAL LIBRARY.

(Continued from page 555.)

AFTERNOON SESSION.

Meeting called to order at two o'clock, by Dr. Howland.

DR. HOWLAND: The first business is the report of the auditing committee,—Mr. Lee.

MR. LEE: I wish to state that the committee has examined the books of the treasurer and has found them correct, and as stated in his report, and has endorsed them as correct as of May 17th.

DR. HOWLAND: You have heard the report of the auditing committee; what is your pleasure?

It was moved and seconded, and *Voted*, that the report of the treasurer be accepted.

DR. HOWLAND: The next business is the paper on "The Hospital as an Educational Factor in a Community," by Dr. Brown.

THE HOSPITAL AS AN EDUCATIONAL FACTOR IN A COMMUNITY.

By DR. THOMAS S. BROWN, Supt. of Mary Fletcher Hospital, Burlington, Vermont.

I desire to say at the beginning that I lay no claim to being the originator of all the ideas advanced in this paper; very many of them in fact I have acquired from others, but as they seem reasonable I should like to pass them on for your consideration. I am especially indebted for these ideas to Drs. Louis Jermain and H. C. Burdette.

The practice of medicine or physic, from which latter term is derived the word "physician," is as old as the human race; and is supposed from legendary accounts to have had its origin among the Chaldeans, Assyrians and Babylonians, the oldest known peoples of the earth.

The science of medicine, however, received its first real impetus in Egypt, where the opening of bodies after death to ascertain the cause of death was tolerated, and as early as 1100 B.C. there is said to have been a college of physicians in Egypt. Not only men, but women also became practitioners, so that we need not be at all disturbed at the increase of women physicians in this day.

Pliny, the historian, says that certain of the doctors were paid officers of the State, and were required to treat the poor free. They were not, however, required to go to the patients' homes, hence it is supposed that in Egypt, as in Athens at a later time, there were certain houses to which the poor came, something after the order of our dispensaries. These physicians were allowed to take fees from private patients even when in the employ of the State,—from this it would seem that State medicine may not become an immediate danger, since it has threatened so long. There has been considerable discussion in our section as to the proper relation of the public health official and the general practitioner and just how far the former should "hand out" his services without charge to the general public.

In the third century B. C. the king of India commanded that hospitals for the sick be established throughout the kingdom, and this was done by the nobles and landowners. Here patients from all lands were given free treatment. Many such hospitals were established in the fourth century and were described by a Chinese traveler in India.

By the first of the present century only one of these hospitals was still in existence and that was devoted to the care of animals instead of humans. This hospital covered an area of about twenty-five acres, and people of all castes could bring their aged animals here for care; and so much were these animals revered that bread and milk was furnished for them when they became too old to crop grass.

Among the first isolation hospitals were those established for the segregation of people suffering from leprosy. Such a "House of Separation," as it was called, was connected with a large hospital built by St. Basil at Caesarea.

This would seem to be the first attempt at preventive medicine, as the isolation was no doubt due more to the desire to protect the well than to care for the sick.

The ancient cities of Mexico had hospitals that were well endowed and attended by experienced physicians, according to Prescott's History of Mexico; and one writer stated that they were not only better than those of Europe, but that "they did not protract the cure in order to increase the pay." All of which goes to show that there are no new tricks even in the practice of medicine.

Of the early hospitals in modern countries we find that Hotel Dieu was founded in Paris in 600 A.D. St. Bartholomew's in London in 1123 A.D., or about that time. The hospitals in Germany came a little later, while in the United States the Pennsylvania Hospital is probably the oldest.

Until recent years hospitals have had as their sole object the care of the sick, and the restraint of the insane. It is only very recently that hospitals in this country have realized how large a part they should take in the education of the healthy; and that their obligation to humanity does not end with their treatment of the sick. However, some hospitals find it very difficult to meet this obligation; in fact, do meet it only partially and rather indifferently.

The true and full service which hospitals may and should render to the public has been very aptly set forth in a paper by Dr. Louis Jermain, Dean of Marquette University Medical School, entitled "The Educational Function of Hospitals." The ideas there set forth are relatively new in this country, although they were in a large part advocated by Henry C. Burdette, formerly Secretary and General Superintendent of Queens Hospital in Birmingham, England, and Registrar of the Medical School, in his extensive work on "Hospitals and Asylums of the World," which was published in 1893. Many, yes, most of the features which seem to be desirable and possible in a hospital were in operation in England at that time, which is about thirty years ago, and have since been seized upon by our American medical educational reformers. It would seem as if the ideas and reforms designed for the betterment of medical education in America were borrowed from a practice well established in England thirty years ago. Nevertheless the aim seems good, so we may perhaps review it with profit.

Dr. Jermain says: "All hospitals in cities where there is a medical school owe it to themselves and to the public to seek some teaching connection with such school. Hospital authorities should hold themselves responsible in a large measure for the training of the future practitioners of medicine, and the members of the staffs of hospitals." Granted that this statement is true and that such a relation does

exist, what is the field open to a hospital as an educational factor in a community?

For convenience let us take it up under these heads:

First—Education of medical students.

Second—Education of staff and medical profession.

Third—Education of nurses.

Fourth—Education of internes.

Fifth—Education of the public.

Education of Medical Students.

It is rather interesting to note that in 1893, according to Dr. Burdette, there were in this country only a very few medical colleges which had anything but the very loosest connection with hospitals. The University of Pennsylvania had its own hospital; Johns Hopkins also had its hospital as part of the medical department of the college; but Harvard had not as yet any direct connection with the hospitals of Boston. Many of the medical schools were giving only a two-year course; some three, and a few a course of four years. Yet at that time English medical students were receiving their training on the wards of English hospitals. In the last few years the training of students by bedside observation has become a general practice in this country, and all thinking people appreciate that it is of great benefit to the medical student in the third and fourth years of his course to come in actual contact with patients. He then has an opportunity to observe the theory which has been given to him by didactic lectures put to the practical test. Truly the clinic and bedside study of patients is the "laboratory test" which makes real the statements of teachers which would otherwise be dry and meaningless.

What then are the advantages to the student? 1st, it trains him to meet patients with tact; to be gracious, and to secure the confidence of the patients. 2nd: By history taking, he is taught to ascertain from the patient's own story all that may bear on the case. 3rd: It trains him to observe carefully, thus adding his own opinions to the facts brought out by the history. 4th: It teaches him not to jump at conclusions, but to delay making a diagnosis in obscure cases until all the known tests have been used either to corroborate or to contradict his impressions. 5th: It gives him a chance to familiarize himself with the technique of many of these tests by actually doing them or by securing the material for someone else to do the work, when the process is too complicated for him to do it personally. 6th: It gives him a chance to observe the results of certain lines of treatment which are under the direction of the most competent doctors connected with the institution. This includes the treatment of medical cases and the pre- and post-operative treatment of surgical cases.

What are the advantages or disadvantages to the hospital and patients of having the stu-

dents on the wards? At first sight it would appear to be only a source of annoyance to the patients, and a nuisance to the hospital. But Burdette, commenting on hospital conditions in England, says, "The condition of residence in a hospital must always be strange at the outset to all patients. At first the presence of students may even be felt to be embarrassing, but this feeling soon wears off and is replaced by quite an opposite one, for by their kindness and skill students quickly win the confidence of the patients and their presence is a great element of brightness on the ward, and does very much to relieve the ennui and loneliness which might otherwise be felt. It is well known that patients are delighted, not grieved, when they find that their case is one of special interest to the students and one on which frequent demonstrations are made. Of course discretion is constantly called for that repeated examination is not harmful, but this discretion is rarely, if ever, wanting.

Dr. Osler says, "The work of an institution in which there is no teaching is rarely first class. It is, I think, safe to say, that in a hospital with students on the wards the patients are more carefully looked after, their diseases more fully studied and fewer mistakes are made.

Dr. Jermain says, "Medical students in a hospital are in a measure a guarantee of thorough work on the part of the staff and internes." May I add, if the staff and internes do their part. In a meeting of this sort I realize that there are many hospitals represented which do not have an opportunity to admit students to their wards, and I want to say that I believe this is a decided misfortune, for there can be no doubt that the student is a good stimulant to the members of the staff.

Education of Staff and Medical Profession.

If the hospital is a good place to begin the education of a doctor, or, perhaps, to educate the beginning doctor, it certainly is a place to continue the education of the doctor who is already at work. Plato tells us, "Education is a life-long process." No one will deny that the doctor who ceases to study and keep in touch with the rapid progress of medical science might better change his business. The hospital affords a place where the doctor can not only study his own cases but he is constantly rubbing elbows with other physicians. He learns what they are doing and is stimulated by this contact. Here he is able to make use of all the latest methods of diagnosis which the rush of his own private practice would not give him time to utilize even if he were thoroughly familiar with the technique. But best of all, and most serviceable to the doctor, is his contact with the students. He must at all times be at his best. Incompetency and bluff are quickly detected and sharply criticised by the students. Again Dr. Osler says, "There is not the keen

interest nor the thorough study of cases, nor, amid exigencies of the busy life is the hospital physician able to escape clinical slovenliness, unless he teaches and in turn is taught by internes and students."

But it is not to the students and internes alone that the doctor with hospital facilities can disseminate the benefits of his training. The man from a distance, who sends his patients to the hospital for treatment, frequently gains some new ideas on his visit to the hospital if the staff man does his duty and explains how he arrived at his diagnosis and what the nature of the treatment is. Every man's duty is to the public at large, and the more widely a man's influence is felt the greater the benefits.

The Education of Nurses.

So essential has the trained nurse become to the physician in order to accomplish the best results in every case and to secure any results at all in some cases, that it is impossible to comprehend what would be the state of affairs in the world without trained nurses.

And yet it is only since hospitals have taken such a prominent place in the care of the sick that it has been possible to train women for this useful service to humanity,—certainly nurses could not be trained without hospitals, nor could hospitals be run without nurses. The life of the nurse is one of the most arduous, and as a recompense she should receive the best of instruction; this she can receive to perfection only from the staff doctors. And it is her right to expect and demand her full measure of instruction as well as a liberal amount of criticism. The latter is always administered without stint, but altogether too frequently the doctor finds no time to carefully explain the why and wherefore of doing or not doing certain things. It is only by such a constructive procedure that a nurse can be given a well-rounded training. Many nurses are good imitators, and the result is a copy of some older nurse whose knowledge is often far from sufficient or satisfactory. It is the duty of the doctor to see that nurses receive intelligent criticism, which means patient and painstaking explanation of the way they like things to be done; if the way they have been done has not been satisfactory. All of this the nurse is entitled to in addition to the best of instruction from the training school teachers, but I am not in favor of making the educational requirements so high that every nurse would be trained for positions of responsibility, for though there is great need of efficient and responsible heads, we must not forget that what the patient needs is care and not a boss.

If the training of a nurse is what it should be it will prove a liberal education to her and make her not only a good nurse, but a useful citizen and the highest type of home-maker.

Education of the Interns.

The additional training and perfecting influence of the hospital has been so fully recognized that at the present time many medical colleges and some State boards are requiring a fifth year to be spent by the student as an interne in an approved hospital or in other acceptable clinical work before the degree of M.D. is granted.

While a student, a man is so crowded with new impressions and is so rushed from one thing to another that he has little time to digest what he hears and sees. But when he becomes an interne he perfects his laboratory technique; he learns care in diagnosis; he analyzes treatment; he learns to read people; he acquires a confidence in himself; he is invaluable to the hospital staff. Many a man who is an indifferent book and theory student becomes a cheerful and consistent worker when he is placed in charge of a ward of patients. The interne should have the benefit of association with the best of the profession; and if the hospital is a teaching hospital he has this association. The interne is the future guardian of the public health and every possible advantage should be given him to acquire skill and confidence. The average medical graduate is a man with a smattering of medical knowledge which he is unqualified to use. The hospital is a finishing room which turns a valuable raw product into a real public asset.

The Education of the Public.

How is this last and most important branch of hospital education to be accomplished? It is indeed a difficult task to make the public understand that by its service to the student, the staff, the nurse, and the interne, it is in reality serving the community. How many people state that "they won't be pawed over by students," little realizing that this "pawing over" is really the true and only scientific basis on which a diagnosis can or should be made. Only by a thorough and exhaustive examination can the real facts of a case be brought out, and the sooner the public learns that the student and the interne must be trained in the hospital or else go into practice untrained, the better. Without this the public would be in the hands of young and inexperienced physicians who would not have had the benefit of carrying out treatment under the direction of thoroughly competent older physicians.

It is altogether probable that few people die of mis-treatment at inexperienced hands; but it is also certain that some patients are constantly suffering from the effects of inefficient treatment due to a physician's lack of study sufficiently exhaustive to make an accurate diagnosis and to carry out the best treatment in each case.

We are still resorting too much to the old custom of treating symptoms. The public must learn that diseases are not properly studied

when we look simply at the patient's tongue; count his pulse and listen to his story.

We must therefore teach them that a careful examination may require several days; that the more men engaged in the study of the case the greater the probability that the real cause of the trouble will be ascertained and that students and internes take nothing for granted; consequently they are the best of assurances of thorough investigation. They must be taught that the staff doctor who is being watched and questioned by students and internes is much more eager and persistent in securing results than the man who is joggling along at his own pace. We must teach the people that the hospital is not a place of last resort, and to be avoided as the very entrance to Hades, but a place where early treatment produces the best results; that it is not a place where the impossible can be accomplished, but where certain advantages by way of diagnosis and treatment can be carried out more completely and successfully than at home; that the hospital is not a place where experiments in medicine and surgery are tried out regardless of the welfare of the patient. They should be made to understand that the well-being of the patient is always the first consideration and that the next is the study of all patients in order that the increase in medical knowledge may become a public asset available to all whether rich or poor.

The patient who refuses to have his case studied thoroughly is doing just so much to hinder the progress of medical science and is withholding from humanity just so much of benefit.

Thus far in this discussion we have proceeded as if all hospitals had a teaching connection with some medical college and were large enough to have internes and a nurses' training school. This of course is not true. There are very many hospitals which have no connection with any medical school, others which have no internes, and there are some which are not large enough to maintain a satisfactory training school. All of these things are a serious handicap. With the advent and recognition of the small community hospital now being advocated by the Rockefeller Foundation the number of hospitals with a limited service is constantly increasing. The directors and staffs of such hospitals should realize the tremendous responsibility resting upon them to maintain high standards of treatment. The hospital should furnish every possible advantage in the way of equipment and then require of the staff an unusual amount of devotion and considerable attention to details which is not required of the staffs of larger hospitals if they are to keep the hospital service from falling to a low grade. Unless carefully managed, these small hospitals will afford a place for men of very mediocre ability to impose their services upon the public. The welfare of the patient is the thing of primary

importance. It must never for any reason whatsoever be replaced by any other interest.

The medical profession stands ready to give unstinted service; with the coöperation of the public every hospital should not only give good treatment (this is the least that it can do), but should also, to the full measure of its opportunities, contribute to the public welfare a well-planned program of education.

DR. HOWLAND: Dr. Brown's very interesting paper is open for discussion. Dr. Washburn of the Massachusetts General Hospital has thought of a good many ways of utilizing a hospital besides caring for the sick. Will you not open the discussion, Dr. Washburn?

DR. WASHBURN: Mr. Chairman, Ladies and Gentlemen:

One way occurs to me in which the hospital can be of great service to the community, and that is by furnishing an opportunity for the education of the physicians of the community who are not on the hospital staff. For a good many years—if I may be excused for speaking of my own hospital—certain devoted men on the staff of the Massachusetts General have given weekly clinics for the doctors in the community. Dr. Smith and Dr. Cabot, in conjunction with the pathologist of the hospital, Dr. Oscar Richardson, have given these clinics once a week, and the busy practitioners of the towns round about have given their afternoons to come in and get brushed up a bit in medicine, and the methods of the study of clinical records in conjunction with autopsy findings. That has, not only the value of keeping the physicians round about with their medicine brushed up a little and up to time, but has the advantage to the hospital of creating a friendly atmosphere with the medical profession. That is one way in which we try to keep in touch with physicians. Another way is to try to keep the doctor who sends in the patient informed as to the progress of that patient. We try to let him know when the operation is coming, and urge him to be present, and we let him know when the patient is discharged, what the findings are, and we try to send the patient back to him.

The matter of education in the hospital itself with pupils who come to the hospital goes a good deal further, or should go, certainly in a large hospital, a good deal further than the training of the doctor and the training of the nurse. For instance, dietitians can well be educated in hospitals. We have our trained dietitians and graduates who are paid by the hospitals, and in many larger hospitals we have pupil dietitians, who get practical training in the hospital in conjunction with a course at some college.

The training of hospital superintendents is one of the most important branches of hospital education. He comes in just like Topsy; he just

grows. In the past, the hospital directors, as they are coming to be called now, the hospital superintendents, have got their training by being assistants to older men in charge of superintendents, until gradually they got their own hospitals, which was a pretty poor way. That is not the way it should be, and in the future it is going to be better, I know. In fact, a committee on this subject is just issuing a report on the Training of Hospital Executives. The Rockefeller Foundation was good enough to meet the expense of such a committee. Dr. Edsall was the chairman, and certain hospital men and women composed the committee. We employed an executive secretary, who was paid by the Rockefeller Foundation, and who went about the country learning what he could on the subject. He has just written a report, which will be published within a month, I think. It is in the hands of the printer now. That report, I can't go into in detail, advocates a training of men and women for this work, so that in the future those who go into hospital administration shall have university education on such questions as public health, the social relation of the hospitals to the community, vital statistics, and business management, and such things as that; something that every one of you will admit that he would have been a more able man or woman, done his job better, if he had had that education. I have wished many times that I had had that education. What we have acquired, we have had to pick up by outside reading, and so on. It is hoped that some foundation, perhaps the Rockefeller, will start some such combined endeavor between hospitals and universities, and start on the training of hospital superintendents,—the Lord knows we need it.

Regarding the community hospital, of which Dr. Brown spoke, we have got to do something for our rural problem, which is getting very serious, and in many of our back country districts, as you know, they can't get a doctor without offering to build them houses, offering to pay them to come into the town. It has always seemed to some of us—these ideas are not at all original—that that thing can be met by these community hospitals. The small general hospital has grown up wherever the community has had a rich man who has given the foundation, or where the community has been urged by doctors to have a hospital, and it has grown up without any planning whatever. We have a lot of small hospitals in Massachusetts and throughout New England, and throughout the rest of the country, not more than half doing their jobs. Architects like to have hospitals built. The result is that there are little towns—and I could name half a dozen right near Boston—little towns side by side each with a hospital, whereas they ought to have concentrated all their endeavors in one good hospital, so that a patient could get all those things which we claim a patient can have and ought to

have. How can you duplicate the man at the head of the staff? How can you duplicate the expert pathologist? the facility for making metabolism tests, and all the tests? You can't do it, and you don't do it. You are misleading people. If we could study these problems, and get our hospitals where they ought to be, and concentrate all the resources of a community on the right side, in one place, and bring to them the skill which they need, and from that centre send out all your visiting nurses, and to that centre bring all your skilled men; perhaps once a week from some larger centre have a man go down and do the tonsils and adenoids for that hospital, or a man to go down and do the orthopedic work, and have clinics,—then they could have the best of service in that one place and from that centre. You can educate your community in these health matters, and educate them to demand the kind of service they ought to have and need in the way of hospital service.

DR. HOWLAND: One of the chief things I had in mind in asking for a paper on this subject was to bring out, if possible, what the hospitals are doing to educate the people of the community; not merely in caring for the sick and educating doctors, but what they are doing to educate the people in regard to diseases. The Harvard Medical School has for some years given public lectures in which specialists talk to the community on various health problems. What is being done throughout New England, away from the big educational centres, in educating your own community, by the hospitals? Are you getting your doctors to teach the people the importance of early diagnoses and treatment, the dangers of pregnancy, and how to ameliorate those dangers? Will some of you not tell what you are doing?

DR. STETSON, Greenfield: I plead guilty. I don't think we are doing very much—not as much as we should do. One or two things that we do is in the education of our own nurses. We have improved very much in five years in that respect, and that, I think, is something toward the education of the public, indirectly. We have once a month a visit from a representative of the Northampton Insane Hospital, and generally once a month a visit from a representative of the hospital for epileptics. Those men see anyone who desires to see them in reference to any nervous or mental ailment, either of themselves or any of their family. There are a number of persons who are insane, or were insane, or epileptics, who are out on parole, and they are asked to report at these times for observation, and to meet the representatives of the hospital in which they were patients.

I can most heartily commend the statement made by the reader of the paper, and also by Dr. Washburn, that the hospital has a great

deal of influence in improving the medical work as a whole, and among men not directly on the staff. They come into the hospital, and they find men on the staff doing certain things, and nurses in the hospital expect them to do the same things. But so far as the staff doing any direct instructive work, I don't think we are doing very much, except, perhaps, we have utilized the graduation exercises of our nurses to get someone to talk on some health matter. That has been of value. Dr. Richardson came up once and gave us a good deal of valuable information, and that is an occasion that a good many people remember. That is, I think, about all that we are doing.

MR. RICHARD BORDEN, Fall River, Union Hospital: I have been very much interested in Dr. Brown's paper. I have always believed that education is a much more powerful influence than legislation, and as the topic has broadened out by discussion, the possibilities of hospital education of the community seem to be much larger than has been appreciated. I think, first of all, the most valuable educative feature of the hospital is the education of doctors who graduated from the medical schools many years ago.—an education that will never stop as long as rapid progress in science goes on; and in that connection one of the most valuable things done recently is the minimum standard requirement of hospitals. We have a monthly meeting of the staff, and those staff meetings have been so valuable to members of the staff that we have concluded to make them monthly clinical meetings, open to all members of the profession. There we have a discussion of subjects, or a demonstration of certain cases under treatment. A large number of general physicians in the town come to these meetings; we have a larger attendance. I think, than the branch of the Medical Society, and I feel that a great deal is being learned by physicians at these meetings.

Coming to Dr. Howland's suggestion about the education of the public: of course I love the doctors, but I don't hesitate to express some opinions about them once in a while. Before you go much further in educating the public in provincial towns you must educate the physicians to feel that they must have regard not only to their own pocket-books but also to their professional standing in the community. Their pocket-books won't suffer if people have a high regard for their professional ability. We now find patients coming to the x-ray department, and patients inquiring about radium treatment, who come to the hospitals, ignoring their physicians, telling that the x-ray man wants to see them, etc. Through the newspapers and other ways, education is getting very broad, education as to what may be done for them in health matters; and I can't help but see that a very considerable number of the medical pro-

fession are being outdistanced in possibilities of diagnosis and treatment by the reading and talking of the public. I think it is extremely important, where it can be done, to have these mysteries of hygiene disclosed to the public by the profession. They used to know nothing, only what they read in patent medicine or quack doctors' advertisements; but they are now getting more direct knowledge of what the truth of the matter is; and where it can be done with the coöperation of the medical members of the community it is an extremely valuable thing to do. But I imagine a large proportion of these doctors come from the smaller cities, and I suspect that they have more or less of the same difficulty with medical members that I have, and that such troubles as we have are not confined to our own city.

There is another way in which, I think, the educative function of the hospital is progressing, and that is by various bodies associated with hospitals in carrying on this work. The Women's Board of our hospital has a certain definite function. It is interested, not in the professional care of the patients, but in the more or less social welfare of the patients, and quite a number of the younger women serve on those committees. So that quite a number acquire knowledge of the effect on the community of disease, and what can be done to remedy it, and I think that knowledge is being spread by younger generations in the community life.

DR. HOWLAND: I have had a feeling for a long time that the doctor in the small community did not take the attitude of not wanting to teach the public because he feared for his pocket-book, but because he was afraid, if he talked in public, other doctors would think he was advertising himself, or would be afraid that one doctor was getting ahead of another. There must be some way to overcome that; and use all the good one could get in a series of lectures.

DR. RICHARDSON: I was at a convention at Washington recently, and I heard Dr. Vaughn say that the trustees of the American Medical Association had promised to establish a popular medical journal, which I think would be of very great importance along this line. If such a journal is established, it certainly will be up to the Hospital Association to have their interests represented, and printed in this journal from time to time.

MISS DOHERTY: Not much educative work is being done by our hospital. In "Cancer Week" we had prominent speakers from Boston both at Springfield and at Holyoke. Our doctors there are very fine in speaking before our Nurses' Association. I think they have also spoken for the Parent-Teachers' Association, and various organizations where they would reach mothers, and I think, perhaps, quite a little has been done in that way. We have a child-welfare commis-

sion, under the control of the city, and the doctors there, I think, reach a great many mothers. We also have free school-age clinics, and various things of that sort, where a great deal of work is being done. We do not have popular lectures such as Boston has at the Harvard Medical School. If anything special is being done, like tuberculosis work, or any of those things, we try to do our part. We have a Tuberculosis Society and various organizations, and our doctors give their services there, perhaps to a greater extent than in some smaller towns. I have found that the doctors are very ready to do anything we ask of them.

MISS STEVENS, Laconia, N. H.: A few years ago, there was practically nothing being done in the way of educational work in the town. People came to the hospital, but we did not seem to be reaching out. We had no public health nurse, or any sort of public health work. I asked the trustees if we might send out one of our training school nurses to people, and I did that for a year. I went to different churches and told them what I should like to do, and that the trustees and the doctors were all willing to help us. I kept that up for five years, and at the end of that time the work had grown, and I felt that it was time to withdraw the training-school nurses from public service, and then the people in the town had come to feel that they couldn't get along without this work. Through the efforts of the hospital, the city has put in a full-time public health nurse and a full-time school nurse, and we now have a tuberculosis nurse, who covers our county and goes into another county.

DR. FAXON, Massachusetts General: Dr. Washburn has hit upon a subject which has come under my consideration, not from the viewpoint of the hospital, but from the viewpoint of the practitioner. I studied the question in connection with other doctors in the community where I practised, and we were led irresistibly, in our own minds, to the opinion that the solution of many problems lay in the founding of small hospitals. These hospitals would stretch out in two directions, one to the general public. They would be collecting places, and the proper places to care for very sick people and for certain kinds of sickness. They would be the places from which visiting nurses should go out. They would be the natural places from which to send forth instruction from the boards of health to the people of the communities. They would be the centres from which to educate the communities in health matters. They would also be the places where doctors would receive education from specialists, who would come to the small community once in a while, once a week, or as often as necessary. In that way, they would keep in touch with the progress of the world. The chief thing that holds back doctors and medicine and everything in the way

of treatment in the country is the fact that doctors have no time to go to larger communities for education. It isn't because they don't want to, or are afraid to, but because they don't have the time. In this way, you bring education to them, and they can get time to receive it, and will receive it, I am very sure. So I think putting forth this idea to a body of superintendents, who can, if they approve, of course, go out and spread this idea, is going to be a great help in solving these problems. It isn't an entirely original idea. I have found that others have preceded me, and that I was not the only one who had arrived at this conclusion. It seems to be a rather slowly growing idea. I hope it appeals to you, because I think it carries great promise.

MAN: One thing we have done for the education of the public has been the giving by different doctors of popular talks to women's clubs; that is rather a good field through which to give popular medicine to the public.

The only objection that I see to the small community hospital is that the men in charge must be very carefully chosen. Unless they do receive some special training for the work, they will not be well prepared. The idea is fine. Undoubtedly, there are many rural communities suffering from lack of physicians, in northern New York, New Hampshire, and Maine. Massachusetts is not so badly off. There are towns where they have had physicians in the past and have none now; where one doctor is taking care of several towns. These men don't go away, because they can't; they have all they can do if they meet the demands made upon them to answer calls. Just because they are so busy, if a small hospital is started in the community where there is a group of such men, it is rather necessary that it should have at its head a man of superior ability, and not a man who without additional training takes on additional functions for which he is not qualified.

(To be continued.)

Book Review.

Medical Record Visiting List for Physicians.

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MEDICINE, VOLUME 1, NUMBER 1.

The initial issue of "Medicine" of 210 pages, is given entirely to two excellent articles, one by Robinson on "The Therapeutic Use of Digitalis," and one by Blackfan on "The Treatment of Meningococcus Meningitis." Both articles successfully fulfil the purpose of the periodical in providing authoritative reviews of the recent advances in clinical medicine.

Robinson's presentation of digitalis therapy is comprehensive and well arranged, and clears up many misconceptions regarding the use of the drug. After a brief historical survey of the use of digitalis he discusses the digitalis group and the potency of the digitalis bodies. Animal experimentation and the newer methods of clinical study of digitalis are next mentioned. The toxic effects of the drug are described and discussed in detail. Gastric symptoms seem to be largely, if not entirely, due to a central rather than a local effect of digitalis, and are inseparable from the therapeutic effect of the heart. The toxic effect on the heart, due to an overdose of the drug, may result in irregularities of impulse production, extrasystoles, partial heart block, pulsus alternans, etc.

In discussing the occurrence of fatalities in connection with the use of digitalis bodies, the point is made that in the practical use of the drug the therapeutic dose is very close to the toxic dose, but on the average is only about 50% of the lethal dose. "The maximum therapeutic effects are probably produced in man by the administration of from 30% to 40% at most of the lethal dose."

The therapeutic effects of the digitalis bodies are divided into four groups—those on the heart muscle, those on the cardio-inhibitory mechanism, those on the blood vessels and those on the kidneys. Proofs for the direct action of the drug on the heart muscle are given in detail. The relation of digitalis to cardiac hypertrophy is left an open question. The effect of digitalis in decreasing the rate of the heart is considered to be due to stimulation of the cardio-inhibitory center and also to a depression of conduction of the cardiac impulse from the auricles to the ventricles. In individuals with normal hearts digitalis produces slowing only when the vagus center is unusually sensitive to stimulation. The evidence seems to prove that the production of heart block by digitalis can occur only in hearts in which the conducting mechanism is already damaged. The benefits derived from the production of heart block in certain types of diseases are emphasized. In discussing the evidence against any direct action of digitalis in the blood vessels, Robinson states that arterial hypertension does not contraindicate the use of digitalis, and may in fact be advantageously effected by its action. The action of digitalis on the kidneys or its vessels is said to be "as yet unsettled, although it has been abundantly demonstrated that digitalis has no diuretic action except under very special conditions."

The discussion of the use of digitalis in heart failure occupies some twenty five pages, and concerns itself in detail with the various types of cardiac

failure, auricular fibrillation, auricular flutter, cardiac contractions of abnormal origin, paroxysmal tachycardia, heart block, myocardial insufficiency, pulsus alternans, valvular defects as such, effort syndrome, and hyperthyroidism are all considered. The point is distinctly made that in considering the therapeutic use of digitalis, it is as necessary to take into account the various cardiac derangements responsible for heart failure as it is the effects produced by the drug.

In the treatment of auricular fibrillation, where digitalis achieves its best results, the evidence at hand seems to establish the fact that ventricular slowing is brought about by the dual action of digitalis on the cardio-inhibitory center and on the conduction pathway. Cases in which auricular fibrillation follows the so-called rheumatic infections in young or middle-aged persons as a rule show the most striking benefit from digitalis. The reduction or disappearance of a pulse deficit is mentioned as an important guide for the proper dosage of the drug. The evidences of heart block or of pulsus bigeminus occurring during digitalization should be taken as immediate signs for discontinuance of the drug. Thorough digitalization of patients with auricular flutter is considered to be a valuable procedure. Premature contractions are largely disregarded except when they occur during the administration of the drug. In paroxysmal tachycardia digitalis has been proved to be of no value. In partial heart block digitalis is contraindicated. Complete heart block, however, is not a contraindication and the drug may be of value in this condition. "In myocardial insufficiency," to quote, "it is evident that digitalis is of definite value, especially where edema is present." The manner in which the drug acts in such cases is still a matter of uncertainty. Regarding the treatment of pulsus alternans there is a difference of opinion and it "would seem that in many of these cases the margin between no therapeutic effect and a serious toxic effect is a very narrow one."

In discussing valvular heart disease Robinson states that in determining the indications for the use of digitalis, valvular lesions as such should be ignored, and other evidences of cardiac disorder should always serve as the guides for use of the drug. Aortic insufficiency is not a contraindication. In mitral stenosis without arrhythmia, the mechanical condition may be benefited, as suggested by Cohn and Fraser. As to the disturbances of the nervous mechanism of the heart Robinson emphatically states that whenever the diagnosis can be established with certainty it should be considered unwise to use digitalis in the cardiac neuroses with any expectation of obtaining beneficial results.

The use of digitalis in acute infections needs further observation. The evidence at hand, however, especially in cases of pneumonia, shows that the action of the drug is the same as in non-febrile conditions. It is probably of little or no value. In diphtheria there seems to be a distinct contraindication to the use of digitalis, on account of the close resemblance between the effect on the heart of diphtheria toxin and of digitalis.

In discussing the proper dosage of the digitalis bodies Robinson points out the wide ranges in the doses recommended by various authorities. He emphasizes particularly the necessity of regulating the dose of the drug by its action, and quotes Withering, the first to recognize and publish an account of the action of digitalis. Withering's advice in 1757 for the use of the drug, though frequently disregarded, is still sound. He said: "Let the medicine be continued until it either acts on the kidneys, the stomach, the pulse or the bowels; let it be stopped on the first appearance of any one of these effects." Various attempts to establish the dose of digitalis for man are described, and the work of Eggleston is mentioned in particular. Eggleston's method of administering the drug in massive doses where rapid action is desired are given

in detail, with a clear warning of the danger of this method "if digitalis has recently been given in any form or by any route." The total dosage for a single or combined massive dose in adults is calculated and Pardee's rule of giving one minim of the tincture for each pound of body weight, in a single dose, is mentioned as a logical and safe proceeding. The necessity of knowing the strength in biological units of the preparation is emphasized. The work of McCulloch and Rupe on children indicates the necessity of employing about 50% more of the drug per pound of body weight than in adults.

The question of the absorption of the digitalis bodies is discussed in full. According to Eggleston "digitalis alone is well absorbed from the alimentary tract of man. *Strophanthus*, *convallaria*, squills, etc., are alike poorly absorbed and irregularly absorbed." *Strophanthus* is especially mentioned as a drug that "should never be used for oral administration to man on account of the danger of serious accident." The tincture of digitalis is better absorbed than digitoxin, digitalin and digitaloin. Evidence for any important destructive action on any of the digitalis glucosides following their therapeutic administration by mouth seems to be lacking. The size of the dose of digitalis when administered by mouth, rather than the delay in the absorption of the action of the drug, is the most important factor in regulating the speed of action of the drug. Intravenous administration is rarely necessary. When such a method is indicated *strophanthin* had best be used. Subcutaneous and intramuscular injections are dismissed as being undesirable and of no advantage over other methods. Rectal administration is mentioned as a possibility in selected cases.

The use of the term "cumulative action" of digitalis is criticized as tending to perpetuate a misconception. That the action of digitalis persists for some time after administration is recognized, although the various bodies differ in this. The point is made that "every digitalin is a synergist of every other member of the group."

As regards the elimination of the drug, Pardee's average figure of 22 minims per day seems to afford a fairly satisfactory basis for continued medication.

Finally in discussing the various preparations of digitalis and its allies the following statements are of interest. "Of the many preparations and specialties which are offered with high claims for oral administration, none is superior to the powdered leaf, or a tincture of high grade, and most are *decidedly inferior*." "The infusion has no advantage over the tincture or powdered leaves." "None of the preparations claiming to be devoid of effects on the gastrointestinal tract should be used on that account. The absence of this effect must be viewed as evidence of inactivity, because of lack of potency or poor absorption, and if gastric symptoms are not produced the desirable effect cannot be expected." Crystalline *strophanthin* is the most satisfactory drug for intravenous use, provided it is protected against deterioration by regulation of its reaction, and by its being marketed in hard glass containers. Squill apocynum and *convallaria* as shown by White and his collaborators, have "no place in the rational treatment of heart failure." In conclusion Robinson states that "the selection of the form in which the drug is used is relatively unimportant if activity, and especially dosage, are controlled, and if the use of unsuitable members of the digitalis group are avoided."

The second article of this issue concerns itself with the treatment of meningococcus meningitis. After a brief résumé of the history of the disease and of the mortality existing before the discovery of specific therapy, Blackfan describes in detail the meningococcus and its strains and the discovery of a specific anti-meningococcus serum. In discussing the diagnosis of this disease and the importance of bacteriological proof in individual cases he points out the difficulty

of demonstrating the meningococci in subacute and chronic cases. This is also true in the presence of a block existing between the ventricles and the spinal sub-arachnoid space. An important point is made that cases do occur in which meningococci cannot be demonstrated in smears or by cultivation, but which do recover under specific therapy.

Prophylactic measures are discussed at length, with especial reference to the carrier problem. The high incidence of carriers is emphasized, and the necessity of isolation of such individuals whenever possible. Local treatment of the rhino-pharynx of such individuals seems to be of no value. Passive and active immunity for prophylactic measures are considered. The evidence at hand would seem to favor prophylactic meningococcus vaccination in epidemics.

It is of interest in considering the epidemiology of the disease to note the author's statement "that the majority of observers are of the opinion that the meningococcus gains access to the blood stream through the upper air passages and then becomes localized in the meninges."

The remainder of the article deals mainly with the details of the specific treatment of the disease. Lumbar puncture as a means of diagnosis is strongly advocated in spite of any theoretical dangers attributable to its use. The intravenous administration of serum is the method of choice. The serum should be given by the gravity method and special attention should be paid to symptoms of collapse. It is essential that the serum should be of high potency, and certain antibodies specific for the causative type of organism; that it be maintained within the cerebrospinal system at high concentration, and in direct contact with the meningococcus. Free drainage should be obtained from time to time by spinal puncture. The symptoms accompanying the intraspinal injection of the serum are outlined and more especially those connected with too rapid injection and the sudden increase of intracranial pressure.

The dosage and frequency of injection and the indication for the discontinuance of intravenous treatment are fully considered. The early intraventricular injection of serum in small infants and in patients with a thick plastic exudate, with or without hydrocephalus is recommended. For general use polyvalent sera are desirable. Drugs, except for the relief of symptoms, have proved valueless. Other measures such as venesection, the intraspinal injection of human serum and antiseptics, salt injections, the use of lumbar puncture alone are all considered and dismissed as unsatisfactory. In subacute and chronic cases the use of vaccines would seem to be indicated as worthy of trial.

Hydrocephalus, as a complication of the disease, is discussed fully, and the necessity of intraventricular treatment is clearly pointed out. In chronic cases with obstructive hydrocephalus, early surgical interference is indicated. Other complications and sequelae of the disease and their treatment are discussed. Serum sickness and the subject of anaphylaxis are briefly considered.

The favorable influence of serum therapy upon the disease is clearly outlined in a brief series of statistics of cases, taken before and after the discovery of specific serum. The present mortality is about 25% as compared with the mortality of 70% some 15 years ago.

In conclusion Blackfan emphasizes the great importance of the potency of the serum employed and declares that "experience has demonstrated that the commercial manufacturer cannot be permitted to determine the method of preparation and choose his own standard of potency."

POSTTRANSFUSION REACTIONS.

LEVINE and SEGALL (*Surg., Gyn. and Obstet.*, Sept., 1922) write as follows:

The compatibility of the recipient's and donor's bloods must be determined prior to each and every transfusion.

No transfusion must be done during or within 24 hours after prolonged ether anesthesia, even when the donor has been found suitable previous to the beginning of anesthesia.

Much depends upon the accuracy of the test. It is, therefore, preferable to do both the indirect test (Moss, 28) to determine the group of donor and recipient, and also the direct (Cocca, 9) test, to corroborate the compatibility of the bloods, thus checking up one test by the other.

In a very recent article Robertson and Rous (39) conclude that in cases of repeated transfusion it is necessary to test for autogglutination in the recipient's blood, and also point out that serum separated at 37 degrees C. contains more agglutinins than that separated at room temperature, whereas agglutination is more marked at room temperature than at 37 degrees C.

[E. H. R.]

THE THERAPEUTICS OF EMETINE.

CHOPRA and GHOSH (*Ind. Med. Gaz.*, July, 1922) present a valuable paper from the pharmacological laboratory of the Calcutta School of Tropical Medicine on the therapeutics of emetine. They emphasize the fact that emetine is a very powerful drug, having a toxic and cumulative action. Its value has been fully established in amoebiasis, but the administration of the drug demands most careful consideration. The patient should be kept in bed, carefully dieted, and the pulse rate watched. The drug must be stopped on the appearance of any toxic symptoms. Convalescents who have undergone a course of emetine should be allowed up gradually, and if there is any increase in the pulse rate, sent back to bed.

One grain subcutaneously every day for 12 days will cure most cases, but a maximum of 15 grains may be given. Some physicians give half a grain by mouth in addition, making a total of 18 grains. Larger doses than this in a single course are not advised. If amoebic cysts are found after treatment the course should be repeated, but, if possible, not within one month.

Emetine-bismuth-iodide is given in three-grain doses for 12 successive days.

[L. D. C.]

A SYMPOSIUM ON CANCER AND ITS TREATMENT.

Annals of Surgery, September, 1922, contains thirteen articles on this general subject and brings the subject of the treatment of carcinoma in certain regions well up to date.

Mayo shows how the end-results in cancer are influenced by type, reaction, location, and age. He states that the views of most investigators seem to harmonize in accepting the regression or degeneration of the cells, of loss of function, and of proliferation, as the processes in cancer, together with that of chronic irritation, which are most liable to be factors in its onset. The action of x-ray on carcinoma causes a complex, physico-chemical change in which the cell becomes edematous, the nuclear substance fragments, and finally all powers of cell regeneration are lost; the debris is carried away by phagocytosis and replaced by connective tissue.

Eliot makes the following statement in regard to recurrence versus metastasis:

"Careful consideration of the clinical features of the cases herewith reported fails to disclose any positive etiological relationship between the primary growth and those that developed secondarily. That carcinoma shares with many varieties of benign tumors the clinical manifestation of independent multiplicity cannot be advanced. There is no reason,

however, why more than one glandular organ should not be exposed to the exciting cause of carcinoma, whatever that may be, either at about the same time or many years after the successful removal of the initial growth. This is certainly true of persistent and long-continued mechanical or other form of irritation which is recognized as the most important pre-disposing etiological factor in this justly dreaded lesion.

"If, for the sake of argument, the possibility of the independent development of two or more carcinomatous foci is granted, the wisdom of the thorough excision of each focus cannot be gainsaid. While metastasis ordinarily contra-indicates surgical interference, analysis of the majority of cases herewith cited leads to the conclusion that a wide excision of carcinomatous foci without evident interdependence yields encouraging results, and the propriety of adopting such a surgical principle will, I believe, be concurred in by all."

Ochsner finds in cancer of the jaw that the destruction of the growth with the actual cautery seems to give better chances of permanent cure than excision with the knife. He is convinced that early and very extensive operation with the cautery followed by carefully planned after-treatment with x-ray or radium is quite worth while in these cases, and that occasionally even advanced cases will be permanently cured by this method.

The following conclusions are drawn by Lower regarding carcinoma of the bladder:

"A large percentage of the malignant cases are of papillary origin, which means that they were referred late to the surgeon.

"The percentage of recurrence is great whatever the method of operation, whether excision or cauterization.

"Recurrence is no contra-indication for treatment, as some of the best results have resulted from operation on cases with recurrences.

"Repeated observation after operation is absolutely essential if the mortality of carcinoma of the bladder is to be reduced.

"The good results of the treatment of recurrences are due to the fact that recurrences are nearly always local and very seldom metastasize."

Lee makes the following statement regarding the radiation of carcinoma of the breast:

"Primary inoperable carcinoma of the breast has shown good results by radiation.

"The patient must be kept under constant clinical observation.

"The type of radiation must be properly selected for each individual case. No routine prescription will suffice.

"Over-treatment by radiation must be avoided.

"Very advanced cases are unsuitable for any form of treatment.

"The palliative operation following properly planned radiation is of service in well-selected cases.

"A co-operating Social Service Department makes a follow-up system effective and gives humanitarian relief to the hopeless cases.

"The results to date are very gratifying and encouraging. As the disease itself and the technic of radiation becomes better understood, we believe that more and more satisfactory results will follow, and that the possibility of still further control of the disease by radiation may ultimately be realized."

Jones and McKittrick present a very well-stated and analyzed article on carcinoma of the rectum, and describe in detail the type of operation fitted to the various types of carcinoma in patients in varying conditions of health.

Davis analyzes the results in carcinoma of the cervix and stands firmly for the use of pan-hysterectomy as opposed to radium in early cases of this disease.

[E. H. R.]

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tion and in effort, seemed to justify the action of the legislature.

The trustees of the State Hospital School for crippled children hesitated in assuming the additional responsibility of the care of sick minor wards, as they were unwilling to impair the excellence of their work in the education of the physically handicapped. It was, therefore, stipulated that the two divisions of work should be sharply separated, although for economy of administration, association in the direction of the two institutions might be desirable. It is with this understanding that a new hospital has been built under the direction of the superintendent of and in close vicinity to the school for crippled children. It is unnecessary to refer here to the remarkable work already done at Canton in the education and surgical and medical care of those children afflicted with orthopedic diseases, but reference should be made to the equally unusual work in providing an efficient method of ventilation which secures for the tuberculous and slum crowded children absolutely fresh air at all times. In almost all of our schools and hospitals the need of fresh air is either entirely disregarded or made imperfectly in a way satisfactory to the plans of the sanitary engineer but entirely inadequate to the physician. This fact can be determined by anyone visiting the wards of any hospital in the winter in the early hours of the morning or late at night from one to three, or in visiting our public schools at the hours of crowded activity. The theory of ventilation, which has seemed satisfactory to the sanitary engineer, is based on the plan of plenum or exhaust method of removing carbon dioxide. The complete inadequacy of this method needs no description, as it is demonstrable in practical experiences.

The trustees of the Canton State Hospital School were fully aware of the need of furnishing fresh air to the children placed under their care and they erected buildings furnished with direct roof ventilation except in a few school rooms where they were obliged by the State laws governing school rooms to use an indirect system. As by smoke experiments the latter method was shown to be absolutely imperfect, open air school was provided. The result proved in the many years' experience of the school, the wisdom of the plan of the trustees of the institution. Adenoids, tonsils, threatening disastrous results have returned to normal and no operative interference has been necessary. In the twelve years' work at the school there has been a marked absence of respiratory diseases and a notable freedom from contagious diseases, although exposure from the visits of parents and the entrance of new patients was unavoidable. The general health of the children, their activity and development in energy as well as ruddy appearance was remarkable. It is for this reason that in planning the new hospital the trustees

THE NEW STATE HOSPITAL FOR MINOR WARDS.

The opening of this new hospital at Canton is an event of more than local interest as it marks progress in the remarkable work of the commonwealth of Massachusetts in its care of the afflicted and neglected children, a work in which Massachusetts has always been preëminent and a leader. The minor wards in our Commonwealth have for many years been placed under careful supervision, not grouped in large institutions but in carefully selected private homes; but diseases incidental to childhood necessarily occur in the several thousand minor wards placed in families throughout the State. These children have been taken, when ill, to local private hospitals or placed under the care of physicians of the vicinity or in many instances sent to the State Infirmary, already overcrowded with the care of adults. For many years it has been thought desirable to establish separate provisions for this group of children. After the proper legislation for the purpose, steps were taken for the erection of a hospital for sick minor wards at Canton, under the direction of the State Department of Public Welfare, and the immediate supervision of the trustees of the Hospital School for the care of crippled children. The excellent record of this latter institution in the treatment, cure and education of crippled children, with marked economy in administra-

stipulated that in their opinion it was essential that the building should not be constructed according to the ordinary lines of hospital construction with flat ceilings and corners impossible of adequate ventilations by the indirect method. The experience obtained in the erection of several buildings, both of one and two stories, enabled the trustees to construct a building to house at once a hundred patients at a minimum cost but of maximum efficiency with necessary laboratories completely equipped to furnish fresh air night and day in all weathers without exposure of the patients and without reliance upon balconies not always practical in the worst weather. To all patients placed in the institution the efficacy of the plan of ventilation is without question, as can be seen in several of the buildings already erected, but the plan is more thoroughly carried out in the new institution and the ventilation has been tested before the occupancy of the hospital by thorough smoke tests. There is in the institution also excellence in planning for economy of administration and in the presentation of well lighted, attractive rooms and corridors.



THE NEW ENGLAND TUBERCULOSIS CONFERENCE AT AUGUSTA, ME.

THE conference opened Thursday, September 28th, in the morning, with addresses of welcome by Maine officials and health administrators with appropriate responses from Massachusetts, Canada and National Tuberculosis Association representatives.

At the meeting of the Medical Section on Thursday afternoon, heliotherapy was the striking subject. Dr. Harry Lee Barnes, Superintendent of the Rhode Island State Sanatorium, presented a study of the apical changes of the lung based on a study of 1,111 patients at his institution. Dr. Hugh B. Campbell, Superintendent of the Norwich State Sanatorium, and Dr. Edward J. Lynch, Superintendent of the Shelton State Sanatorium, Connecticut, continued the discussion on x-ray diagnosis, agreeing that it should not be used independently, but is of great value when employed in cooperation with other means. The emphasis of the session was laid on the success of heliotherapy, not only for bone and glandular tuberculosis in children, but for the pulmonary forms also. The speakers were Dr. Cole B. Gibson of the Meriden State Tuberculosis Sanatorium and Dr. John F. O'Brien, Superintendent of the Seaside Sanatorium at Niantic, Connecticut. The general claims of these speakers were that all forms of disease yield to the sun cure. Pure sunlight instead of sunlight through windows is demanded. Exposure of the bodies of the patients to out-door conditions even in the coldest weather causes no discomfort if the patients are properly accustomed to the change. It was as-

serted that the intense suffering of children ill with bone tuberculosis stops quickly under heliotherapy. Surgical operations are considered unwise by these speakers for the treatment of diseased glands, and it was asserted that the removal of tonsils and adenoids instead of being beneficial led to aggravation of the symptoms.

At the same time the Nursing Section had a meeting, at which Miss Hazel Wedgewood of the American Child Hygiene Association, Washington, discussed the "Standardization of Public Health Training." She emphasized the need of a definition of public health nurse and in supplying this definition stated that she should be a graduate hospital nurse, of at least two years' training, doing any form of public work in which her training as a nurse is useful. The nurse should have a knowledge of normal health, orthopedies, mental hygiene and the causes of mal-adjustment. She should be able to recognize the early cardinal symptoms of communicable diseases. She should keep herself in good health and have clerical ability.

Miss Edith L. Soule, State Supervising Nurse of the Maine State Department of Health, set forth the "Essentials for Standardization" under a number of headings: special training in public health nursing; study of local, county, state and national health programs; close cooperation with county and state medical associations; standing rules and standard technique; careful supervision; accurate record keeping, and frequent group conferences of nurses and supervisors.

Miss Mary E. Edgecombe of the Providence District Nursing Association spoke on the "Relations of the Nurse in the Home," and spoke especially on the duties of the tuberculosis nurse.

Thursday evening the first speaker was Dr. Edward O. Otis, President of the Massachusetts Tuberculosis League, who outlined the place of the National Tuberculosis Association, speaking of the recent International Tuberculosis Congress in Washington and the work of the N. T. A. in developing ways and means for fighting the disease. Rapid diminution in tuberculosis has been noteworthy since the initiation of organized effort against it, but in the opinion of the speaker there will be a minimum of the disease so long as human nature is what it is and people are neglectful of its beginnings. He emphasized the need of protecting the health of children so that in later life they may not develop tuberculosis, and approved the present methods of surveys and the advantage of co-ordinating health agencies for the eradication of tuberculosis.

Dr. B. L. Bryant, Secretary of the Maine Medical Association, outlined the work of his organization, which has established an advisory health committee of the three state-wide organizations,—the State Department of Health, the Maine Medical Association, and the Maine Pub-

lie Health Association. An effort is under way to secure similar federations of county activities. Work along lines of periodic examinations is advocated, and effort is made to secure coöperation and support of public health nurses, and the plans contemplate a public relations committee as a clearing house for the various medical groups. Maine hopes through these measures to establish a harmonious self-supporting health unit in every community in the state.

There was a discussion on the question, "Should there be a consolidation of all voluntary health agencies?" with Dr. E. T. Merrill, President of the Maine Public Health Association in the affirmative, and Mr. Hubert M. Sedgwick, Secretary of the Connecticut Tuberculosis Commission, in the negative. Dr. Merrill's summary is that the voluntary health workers should be united in one organization with one staff, one office expense, one appeal for funds, and at the same time refer through definite committees the specialized interests of the different movements, such as the campaign against tuberculosis, against cancer, the control of social diseases, infant welfare, prevention of blindness, etc. Mr. Sedgwick feels that the "health trust" weakens the individual campaign against a disease by failing to focus the local units upon it. His attitude was not that of discouraging coördination, but combating the idea of a public health association as a cure-all for the organization weakness.

On Friday there were six meetings of sections together with meetings of affiliated associations, and in the evening a social diversion. At the meeting of the Medical Section, Dr. J. Perkins, President of the Providence Tuberculosis League, discussed "The Diagnosis of Tuberculosis," bringing out the point that the diagnosis of tuberculosis is not a science, but an art. Dr. Estes Nichols of Portland, late Lieutenant Colonel, M. C., U. S. A., spoke on occupational therapeutics for tuberculosis, illustrating his talk with stereopticon views. He emphasized the point that occupational therapeutics will bring comfort and happiness, and strengthen morale of the patient.

Dr. D. C. Jarvis of Barre, Vt., presented a paper on dust inhalation, carrying further the researches that have already been published.

At the meeting of the section for secretaries and nurses, the procedure in all the New England States was set forth by someone connected with the State Board of Health.

At the meeting of the Sanatorium Section, Dr. Henry D. Chadwick, Superintendent of the Westfield State Sanatorium, spoke on "Tuberculosis of Children." He called attention to the fact that the infantile form of tuberculosis usually results fatally where the infection occurs before the age of two years. From this point on there is a steadily increasing immunity. After the age of five the juvenile form of tu-

berculosis largely predominates. This he characterized as "a golden interval of low mortality" between the infantile form and the adult form. The adult type of tuberculosis rarely develops before the age of twelve. His paper discussed the points on which the diagnosis of the various kinds of tuberculosis, especially the juvenile, should be based.

Dr. Thomas A. Foster of the Children's Hospital at Portland emphasized the need of special wards to care for children with tuberculosis of the bone. It is generally possible to effect a cure of a child with this form of disease if he can be kept long enough under proper supervision.

One of the afternoon sessions on Friday was devoted to the Christmas Seal Sale, with Mr. Basil G. Eaves, Campaign Secretary of the National Tuberculosis Association, chairman.

The concurrent session was that of the health officers, with Dr. Eugene R. Kelley in the chair, at which Dr. Charles Dalton, Secretary of the State Board of Health of Vermont, spoke on the relation of the voluntary health worker to the state and local health officer; Dr. Thomas Tetreau of Portland, on the enforcement of health laws, and Dr. Howard A. Streeter, Health Officer of Manchester, New Hampshire, spoke on the question of politics and the health officer.

In the evening the great social event of the meeting took place in the State House in the form of a husking bee.

Saturday morning was devoted to two general topics—general consideration of health, by three speakers, and the discussion of rest cure in the home treatment of tuberculosis by Dr. S. Adolphus Knopf of New York. The concluding exercise was a Modern Health Crusade luncheon at the Augusta House on Saturday noon.

THE MASSACHUSETTS MEDICO-LEGAL SOCIETY.

This society has been in existence 45 years, it meets every four months, on the same date and in the same place as the Council of the Massachusetts Medical Society. Its active membership consists of the Medical Examiners and Associate Medical Examiners of the State, with honorary membership of experts in various branches of legal medicine, members of the medical or legal profession who have contributed to the advancement of legal medicine, and retired active members.

The Society was founded in 1877 and in earlier years its work was fostered and largely contributed to by the revered Professors, Edward S. Wood, F. D. Draper and Wm. F. Whitney, and many men of ability who served in various sections of the state.

In absence of any central controlling body the Medical Examiners have found the Society to be the only means whereby anything approaching uniformity of procedure in the various districts could be attained and it has rendered a notable service to the Commonwealth by bringing the Examiners of the remotest districts into intimate contact with those of the Metropolitan areas and with the best teachers of legal medicine.

The Massachusetts law places very large discretionary powers upon those medical men whom she honors by appointment to the office of Medical Examiner and it can be fairly claimed that those powers have never been abused. Moreover, the medical investigations by expert men, often independent of and preceding, or, in cases of death from obvious unnatural cause, always supplementing those of the regular police, have been of undoubted utility in the detection of crime and convicting of the criminals. Such investigations at present play an important part in industrial accidents, accidents on the highways and railroads, deaths from alcohol, drugs or vocational poisonings, in most of which there is no criminal liability, but in which the victims are covered by various forms of insurance.

At the recent meeting—Wednesday, Oct. 4th—a subject of very great moment to the medical profession in general was considered—namely “The Medical Examiner’s Duty in Relation to Surgical Deaths.” The problem, as Medical Examiners face it, was stated by Dr. Hunt (11th Worcester) to hinge upon the interpretation of that portion of Section 38 (General Laws) which provides “if upon such view, personal inquiry or autopsy the Medical Examiner is of the opinion that the death may have been caused by the act or negligence of another, he shall at once notify—a justice—. The court or trial justice shall thereupon hold an inquest.” It was pointed out that this phraseology was adopted in 1916 in an effort to reduce the number of inquests on cases of simple accidents, suicides, etc., but the possibility of bringing surgical deaths into the class for which inquests were necessary was probably overlooked. As instances which might come to a Medical Examiner’s attention, a case of death resulting from gastro-enterostomy by an eminent surgeon in which the anastomosis was made to the large intestine instead of to the jejunum, and a case where an inexperienced operator in attempting to do a vaginal hysterectomy opened the bladder, and then proceeded to complete the operation by the abdominal route with the result that the patient died of peritonitis, were quoted from a book by Norman Barnesby. Hon. E. P. Saltonstall, District Attorney for Middlesex County and Legal Advisor to the Massachusetts Medical Society, was present as guest, and the question as to the application of the clause quoted was

referred to him. He said in part—“the mere fact that a death was caused by the negligent act of another isn’t sufficient to make it a crime, but as to reporting it the statute does not make any such distinction. It reads ‘by the act or negligence.’ If you think the death was caused by the act, whether it was negligent or not, or if death results from injury caused by negligence of another, I think you are taking great chances if you don’t report every such case. It is your duty to do it.” Specifically referring to the two cases cited he said, “it would be your duty to report such a case as that. I don’t know enough about surgery to know whether removing the womb through the vagina was a reckless thing to do. The first case was mere negligence; but if a man willfully does something which common sense should have told him he didn’t have the experience to do. I should think such a case should be reported.

“Your President introduced me as Medical Advisor of the Massachusetts Medical Society. I have not tried many cases yet, but one of the difficulties I have to overcome is the prevailing thought in the minds of the jurors that all doctors stand together, and that they are willing to go to great lengths to protect each other in suits arising from acts of carelessness, oversight or bad judgment. Now anything that you gentlemen do to encourage that prevailing opinion is going to make it harder and harder to overcome, and it is going to make it harder and harder to bring these cases into court. They have been increasing. I think anything that doctors do that is not absolutely above board, if they are not laying their cards on the table, is encouraging that feeling. I think the law requires that where we find death has been caused by a mistake—certainly by negligence—and I would almost go so far as to say a serious mistake of judgment—that such a death should be reported to the district attorney and a justice of the court or trial justice in the usual way.”

The discussion was participated in by several Medical Examiners. Some expressed the opinion that the intent of the law did not contemplate inquests on such cases. Dr. G. B. Magrath said that since the passage of the law it had been his practice in Suffolk district to report such cases, the Medical Examiner’s function being to ascertain the medical facts and form an opinion on them and the story of the case as he obtains it from inquiry. He then informs the justice, whose responsibility it is to decide whether there be criminal act or negligence. An inquest may, at the discretion of the judge, be strictly private.

This opens up interesting possibilities for control of the practice of surgery by an agency outside of the Board of Registration in Medicine. While its strict application might occasionally prove embarrassing, should it become a recognized fact that a judicial inquest would

follow every death resulting directly from a mischance of operation or anesthesia, it might well prove a valuable restraining influence upon inexperienced or injudicious use of surgery.

Another feature of the Meeting was a valuable paper by Mr. Chester H. Clark from the Internal Revenue Service upon Drug Addiction in Massachusetts and its Medico-legal Relation. This paper will later be published in detail in this Journal or in the Proceedings of the Society.

AMERICAN COLLEGE OF SURGEONS OCT. 23-27.

Boston hospitals and Boston surgeons are doing and showing their best for the annual meeting of the College with its distinguished foreign guests and the two thousand Fellows assembled.

No doubt the meeting is by way of being a success—so much has been promised in the program.

Perhaps a word may be in place here and now, to speak more at length of the College and its aims and what it has done in its nine short years of existence.

Because American Surgery, vigorous, vital, mostly fine, yet stood in need of standards more nearly fixed, because there was need of a body to represent its ideals, the American College came into being.

It was conceived in the first instance as a means of raising the standard of surgery by setting and raising the standard qualifications of surgeons.

Beginning with the original committee of ten, then with the 450 "founders"—men of acknowledged standing and character, increased by careful picking of other established surgeons, chosen by state committees as measuring up to set standards of training, skill, experience and decency, now growing by additions in the last few years from the younger men, younger Fellows, chosen for all that marked the older ones, but tested also by careful examination. So founded and enlarged, the college includes 4000 surgeons and practitioners of the surgical specialties, and stands as the acknowledged surgical body of the United States and Canada.

That part of the work is well on the way in the face of opposition expected and met and needs but a continuance of careful recruiting with standards slowly and steadily trending upward.

There was a serious evil in the "fee-splitting" so prevalent in some states that it menaced the work of the College. The practice had been frowned on from the start, forbidden by the College's fellowship pledge, and never got any foothold in its ranks. But so general was the practice in some states that it was hard for the Fellows to keep going and keep clean.

The College took up this matter and scores of meetings—doctors' meetings, meetings of

hospital trustees, public meetings—were part of an educational campaign in many places in many states, mostly conducted, and very ably conducted, by Mr. John G. Bowman, then Director for the College.

No one pretends that fee-splitting is dead but it is at least less deadly.

Because hospitals needed standards no less than the men who served them the College got the American Hospital Association to join in a campaign.

Resultant, a campaign now six years old, that has had no fanfare of publicity, that has coerced no one, that has, none the less, brought hospital standards to a definitely higher grade.

Today we all have records, pre- and post-operative diagnoses and all the rest.

They are a nuisance we all feel at times, but goodness knows they have been a blessing in disguise. Daily we sputter, and read, and sign, and then sometimes think how casual we all used to be.

We have laboratories, x-ray plants and men to run them far more generally than before this campaign set standards.

Best of all, everywhere in the country now are the stated monthly staff meetings dedicated to free discussion of hospital problems. Six years ago such meetings were held by few hospitals. Nothing has been more helpful than this simple innovation in promoting cooperation and efficiency.

Hospitals already half standardized and in order, and the work progressing.—what next?

Next comes surgical teaching and training with much to be done and changed.

The schools are doing their best with undergraduate training and one wonders sometimes if they are not doing too much; at all events they are not the immediate concern of the College.

It is the graduate training, the training of a decade and more after medical school and hospital internship that concerns us most.

Has not our teaching carried out by the written word and the open clinic contained a bit more propaganda, a bit less sound surgery than it should?

It is not long since that Codman, talking ceaselessly of end-results, was as one crying in the wilderness.

This year we are again pledged to report for publication a year later all the end-results of cases operated on before the visiting surgeons.

That is an excellent plan but it is not all.

The emphasis in the actual presentation of clinics this year has come to be not on the operative clinic but on the "dry" clinic: we are stressing not surgical technique but surgical results—for the dry clinics mean only this,—that the surgeon shows what he has done, and finished, and tells withal what he has learned and is ready to pass on to his Fellows, with demon-

strated reasons why they should receive it, or why not.

Surgery up to a few decades ago was the exhibition of the marvellous technical skill of the master.

It was in a way a show.

Times have changed.

The surgeon today, not less skillful, recognizes that the logical thing to present is *not a surgical show but a surgical "show-down."*

That he is ready to do this represents a changed sense of values which the College has had no little share in promoting.

NEWS ITEMS

DEATH RATE IN BOSTON.—During the week ending Oct. 14, 1922, the number of deaths reported was 192, against 188 last year, with a rate of 13.11. There were 37 deaths under one year of age, against 22 last year. The number of cases of principal reportable diseases were: Diphtheria, 53; Scarlet Fever, 24; Measles, 37; Whooping Cough, 50; Typhoid Fever, 4; Tuberculosis, 33. Included in the above, were the following cases of non-residents: Diphtheria, 21; Scarlet Fever, 4; Typhoid Fever, 1; Tuberculosis, 4. Total deaths from these diseases were: Diphtheria, 2; Scarlet Fever, 1; Whooping Cough, 2; Typhoid Fever, 1; Tuberculosis, 14. Included in the above, were the following cases of non-residents: Diphtheria, 2; Typhoid Fever, 1; Tuberculosis, 1.

THE ONE HUNDRETH ANNIVERSARY OF THE BIRTH OF PASTEUR.—The New York Academy of Medicine has organized a celebration of the 100th anniversary of the birth of the late Louis Pasteur, which is to consist of a public exhibition, in the building of the Academy, commencing on December 27, 1922, the anniversary date, and culminating at the end of a fortnight in an evening of public addresses by distinguished members of the medical profession. The exhibition will consist of a collection of Pasteur memorabilia, such as books, manuscripts, photographs, engravings, medals, etc., illustrating the life work of Pasteur.

THE ANNUAL MEETING of the Cambridge Anti-Tuberculosis Association was held Oct. 10 at the Phillips Brooks House. The report of the year's work was read by the Executive Secretary, Mrs. Mabel Greeley Smith, and of the East Cambridge Health Center by Mrs. J. G. Thorp. The chief activities reported upon were: Coöperation with the Cambridge School Committee in the support of two summer day camps for undernourished children with an attendance of 312. Nutrition work in public and parochial schools. The beginning of Occupational Therapy at the Cambridge Tuberculosis Hospital. Health Center in the foreign section of the city. Educational work.

Officers Elected for 1922-1923: *President*, Eugene A. Darling, M.D.; *Vice Presidents*, Mrs. Rufus P. Williams, Edward A. Andrews; *Secretary*, Miss Louise W. Jackson; *Treasurer*, Miss Eva H. Bowe, Harvard Trust Company, Harvard Square.

Board of Managers: Rev. James T. Addison, Sumner C. Andrews, M.D., Rev. Hugh F. Blunt, Mrs. Raymond Calkins, Miss Bernice W. Cannon, Merrill E. Champion, M.D., Mrs. Leslie L. Cleveland, Hiram W. Colton, Bronson Crothers, M.D., Arthur Drinkwater, M. E. Fitzgerald, Rabbi Aaron Gorovitz, Thomas Hadley, Rev. Frank O. Holmes, Mrs. Edward Ingraham, Harry W. Joel, Mrs. Oliver D. Kellogg, Mrs. Kirsopp Lake, Mrs. Herbert Langfeld, Roger I. Lee, M.D., Felix McGirr, M.D., Miss Penelope B. Noyes, Mrs. J. Arnold Rockwell, Mrs. Charles R. Sanger, Mrs. Winthrop Slade, John J. Smith, M.D., John H. Taylor, M.D., Mrs. Joseph G. Thorp, Mrs. Charles P. Vosburgh, Joseph M. Wadden, M.D., George C. Whipple.

PLYMOUTH DISTRICT MEDICAL SOCIETY.—The regular quarterly meeting was held Thursday, October 19th, at 11 o'clock, at the Brockton Hospital. There was an opportunity to inspect the hospital. At 10 o'clock there were Surgical, Medical and X-ray Clinics. Speaker: Dr. Lesley H. Spooner, of Boston; subject: "The Specific Diagnosis and Treatment of Lobar Pneumonia."

BEVERLY HOSPITAL.—A demonstration clinical meeting was held at the Beverly Hospital Tuesday, October 17, 1922, at 4 p. m. Interesting cases were shown and discussion followed.

REGISTRATION OF NURSES.—Two hundred and ninety-seven graduate nurses were present during the October examinations conducted by the Board of Registration of Nurses.

THE REGULAR MEETING of the Springfield Academy of Medicine was held Tuesday, October 10, at 137½ State Street, at 8:30 p. m. Dr. Wyman Whittemore of Boston read the paper of the evening, entitled "Some Surgical Diseases of the Chest."

DINNER TO DR. FAXON.—On October 11th a dinner was given at the St. Botolph Club to Dr. Nathaniel Faxon, who is about to leave his position as Assistant Administrator of the Massachusetts General Hospital in order to assume the duties of Director of the Strong Memorial Hospital in Rochester, New York. Dr. Faxon will have oversight of the building of the hospital, for which a provision of ten million dollars has been made. The Strong Memorial Hospital will be connected with the School of Medicine and Dentistry of the University of Rochester. The dinner was given to Dr. Faxon by his

friends at the Massachusetts General Hospital. There were many expressions of regret for the loss of his services here, and at the same time many congratulations because of the splendid opportunity which he will have in Rochester. A cigarette case was presented to Dr. Faxon by his friends as a token of their great appreciation of his work at the Massachusetts General Hospital and as an expression of their personal esteem.

Miscellany.

INFANT MORTALITY IN THE BIRTH REGISTRATION AREA OF THE UNITED STATES.

The Department of Commerce will soon issue a bulletin, based on 1921 figures compiled by the Bureau of the Census, showing for each State and each city in the birth registration area the number of births and the infant mortality rate, together with figures for 1920 for comparison. These 1921 figures for a population of 70,425,705 show 1,714,261 births, 825,511 deaths at all ages, and 129,588 deaths under 1 year of age, which give a birth rate of 24.3 per 1,000 population, a record low death rate of 11.7 per 1,000 population, and a record for low infant mortality rate of 76. In 1920 the rates for the birth registration area were: Birth rate 23.7 per 1,000 population; death rate 13.1 per 1,000 population; and infant mortality rate 86.

For the State the lowest 1921 infant mortality rate (51) appears for Oregon, and the highest (98) for Delaware; for cities of 100,000 population or more the lowest infant mortality rate (50) appears for Portland, Oregon, and the highest (114) for Fall River, Mass.

1921 birth rates and infant mortality rates for cities of 100,000 population or more in Massachusetts:

	Birth Rate.	Deaths of Infants Under One Year of Age per 1,000 Births.
Boston, Mass.	25.6	77
Cambridge, Mass.	27.6	64
Fall River, Mass.	30.7	114
Lowell, Mass.	27.8	90
New Bedford, Mass.	29.2	95
Springfield, Mass.	25.0	72
Worcester, Mass.	26.2	77

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

MONTHLY HEALTH BULLETIN, OCTOBER, 1922.

September has, as usual, been a very quiet month, with less illness than at any other period of the year.

Two thousand two hundred and ninety-one new patients were admitted. A unique fact in

connection with these new patients was that fully one-half of them were babies or pregnant or newly delivered women.

The unseasonable activity of bronchitis and pneumonia, which marked July and August, and which, with the absence of digestive diseases, have been the outstanding features of the season, continued during September, 41 cases of each being admitted. On the other hand there were fewer cases of all the other diseases.

Continuing the gratifying decrease of the last few months, there were only three new cases of typhoid fever, a big decline from the number admitted in September of last year. Measles dropped to the lowest point in months, twenty-nine cases, but whooping cough increased, twenty-eight cases, as compared with four of last September.

The baby clinics showed an unusually good attendance.

A MODEL MEDICAL MEETING.

A program of the Second Annual Clinical Meeting of the doctors of central and western Alabama has been received. The subjects discussed embraced those which are especially useful to those physicians who are striving to give most efficient service.

Surgery, general medicine and public health problems were well covered.

Officers of medical societies who are responsible for details of meetings could use the information found in the program to advantage.

Alabama has certainly created a standard which could be adopted in a general New England meeting.

UNION DES FEMMES DE FRANCE.

This section of the French Red Cross has had a remarkable career. During the war, in addition to other activities, it is credited with the following achievements:

It maintained 400 hospitals with a total of 32,000 beds, and afforded in all 17,300,000 days maintenance. They organized the voluntary co-operation of 775 Red Cross doctors and of 20,000 nurses, of whom 1,000 were attached to nursing units in the Army Zone (administrative personnel not included).

Ten doctors and 55 nurses died at their posts; 310 were awarded the Croix de Guerre; 51 received the Legion of Honor, and 70 were awarded foreign decorations.

Four hundred and two U. F. F. nurses served with military hospitals in Morocco (Rabat, Casablanca, Meknes).

Nursing units with the army of the East, and in allied countries counted 90 nurses; 70 nurses went to Russia.

A hundred model ambulances were placed at the disposal of the Army Medical Service; 30,000 wounded were transported in the Paris district alone; a convoy of motor stretchers was in operation for a period of two months, and undertook the transport of 100 severely wounded men.

Station canteens undertook the despatch of parcels to soldiers at the front, and to prisoners of war throughout the duration of hostilities. In Paris alone, 165,000 parcels were dealt with. An information service was maintained for soldiers' families and relatives of prisoners of war. Soldiers on leave (French, Belgian, Serbian) were cared for, and warm clothing distributed.

OLD CATHERINE HOSPITAL.

THE following appeared as a communication in the *New York Times*, under date of Oct. 5, signed by John Haynes Holmes:

"In the city of Moscow, some two miles from the Kremlin, is a hospital which promises to be the scene of one of the most important and beneficent chapters in the history of American relief in Russia. This is the historic old Catherine Hospital, which had its beginnings in the reign of Catherine II. It was my happy fortune, this last summer, to visit this institution as a member of a committee of the American Medical Aid for Russia. The hospital had some 400 beds, with accommodations for 450 workers. In happier days it provided for a total population—patients, physicians, nurses, orderlies, servants, etc.—of more than 2,000 persons. The grounds are now rough and unkempt, and the buildings in disrepair, several of them mere ruins.

During the last year the American Medical Aid for Russia, organized under the direction of a group of American physicians, raised a fund sufficient to purchase a hospital equipment adequate for a first-class institution, which is being shipped to Russia as rapidly as possible. The society has sent in equipment and donations in kind approximately \$60,000.

Under an agreement formulated between the Moscow health authorities and the society, the old Catherine Hospital is now being put in first-class repair by the Soviet authorities and placed in charge of the American Medical Aid for a period of one year. Having already equipped the hospital, the society agrees to provision both patients and staff, and maintain the institution as a modern hospital of the highest standard.

For this great work the sum of \$200,000 is promptly needed. My colleagues and I are agreed that such an undertaking, initiated in the name at once of American science and beneficence, will make an irresistible appeal to our fellow-citizens, and elicit their generous support.

Local groups of the American Medical Aid for Russia are being organized in the great cities

of the country for the raising of funds. The officers of the organization are Mrs. Henry Villard, Chairman; Arthur S. Leeds, Treasurer; Frances Witherspoon, Executive Secretary. The National Advisory Committee of scientific men includes such names as those of Dr. Charles H. Mayo, Dr. M. J. Rosenau, Dr. Lewellys F. Barker, Dr. Haven Emerson, Dr. Harvey Cushing, Dr. Morton Prince, Dr. M. W. Ireland, Dr. Joseph Goldberger, Dr. Walter B. Cannon, and Dr. Jacques Loeb. Individual contributions may be sent to the American Medical Aid for Russia, 103 Park Avenue, New York."

SUMMARY OF WEEKLY HEALTH INDEX.

Telegraphic returns from 64 cities, with a total population of twenty-eight millions, for the week ending September 30, indicate a mortality rate of 10.7 as against 10.6 for the corresponding week of last year. The highest rate (18.0) appears for Memphis, Tenn., and the lowest (5.0) for Youngstown, Ohio. The highest infant mortality rate (178) appears for New Bedford, Mass., and the lowest for Albany, N. Y., which reported no infant mortality.

THE DIPHTHERIA MENACE.

The daily papers report that the Schick test now being used by the Boston Health Department has demonstrated that forty-five per cent. of the children are possible victims of diphtheria, when treated with toxin-antitoxin. In order to carry on the work effectively more physicians and nurses will be assigned to this work under Dr. John A. Ceconi.

THE MOSQUITO PEST.

The papers have published an alleged statement of Professor George C. Whipple to the effect that it is possible by concerted action to eliminate the mosquito in the inhabited parts of this State. This is a public health measure of importance, for in addition to the annoyance of the mosquito, irritation, loss of sleep and physical poise may lower resistance and thereby make a person susceptible to infection.

VORONOFF'S WORK ON GLAND TRANSPLANTATIONS.

ACCORDING to the daily papers, the medical profession of France is antagonistic to Voronoff's methods. He claims that great benefits have resulted from the grafting of the glands of apes onto man.

His recent lecture was largely boycotted by physicians, but a large concourse, including many women, seemed very much interested in the methods employed and assertions made.

RELIEF FOR RUSSIAN SCIENTIFIC MEN.

THE "Friends of Russian Scientists," an organization sponsored by a hundred professors and social workers in and around Boston, for the purpose of raising contributions to be known as the Gorki Fund for the Relief of Russian Scientists, has just received the following letter from Maxim Gorki:

In reply to your letter let me make the following statement: "The House of Scientists" in Petrograd is a charitable organization for mutual benefit, founded by Petrograd professors. I have the honor to be its chairman. The full name of the organization is "Committee for the Betterment of the Condition of Scientists" (Kommissia Ulutschenia Bitia Utschenich—abbreviated: KUBU). Address: C. Oldenburg, Member of the Academy, House of Scientists, 27 Millionaia, Petrograd.

The "House of Scientists" brings together all the scientific workers of Petrograd—there are about 3,000 of them, and together with their families they comprise about 12,000 souls. They are undergoing great privation, and are in particular need of sugar, flour and fats.

Most of the scientists are men of middle or advanced age, enfeebled by years of undernourishment and the numerous worries of present-day life in Russia.

A ten dollar "A. R. A." parcel is a great help. The work of the American Relief Administration with Hoover at the head is one of the most brilliant pages in the history of the United States.

It seems to me that there is no need to describe in great detail the extent of misery among the scientists.

Do make every possible effort to sustain at least ten of these precious lives—precious in the broad sense of serving all mankind, the work of science being truly international and universal.

I wish you success in your good work!

M. GORKI.

SUPPLIES FOR THE CANCER CAMPAIGN.

The proceeds of the Lasker Memorial Fund, established by the family of Mrs. M. Lasker, in memory of her son, Harry M. Lasker, are this year being applied to an activity which the Society has hoped for two years to be able to accomplish. We refer to the reproduction of the colored cancer exhibit which has now been lithographed in six colors on cardboard 14 in. x 22 in. A copy of this striking and instructive exhibit will be available for each of the Society's committees (some 700 in number) and will be sent direct by the Acme Lithograph Company, New York.

The Society is ordering 1,000,000 copies of the little circular "Vital Facts About Cancer," which will also be sent about that time. Will

State and Provincial Chairmen kindly make known their wishes with regard to this shipment. If they prefer that the material not be shipped to them for transmittal to their district, county and local committees, information as to whom they should be sent, and the proportion which each should receive, will be greatly appreciated.

The letter written by Dr. Frank Billings of Chicago for special reading in churches will be printed in an edition of 500,000. May we ask once again that the State and Provincial Chairmen notify their various committees concerning this in order that arrangements may now be made with the clergy throughout the land for the reading of this short, earnest and authoritative letter? Remember that it is also suitable for reading before lodges, clubs, and all manner of assemblages where time will not permit of a longer address.

The Metropolitan Life Insurance Company has submitted and secured the Society's endorsement of another excellent cancer circular entitled "A Message of Hope." Besides supplying this to all its managers and agents for distribution to policyholders, the Company has liberally allotted 500,000 to be sent to our Cancer Committees.

HEALTH ESSAY CONTEST.

THE Board of Health of Brookline has offered the following prizes to the school children of that town for the best essays on subjects relating to health: A first prize of ten dollars, a second prize of seven dollars, to children of all grades; a third prize of five dollars to children in the grammar school grades only, and a fourth prize of three dollars for children in the six lower grammar school grades.

THE SALARY OF A HEALTH OFFICER.

THE Medical Officer of Health of the city of Manchester, England, resigned a few months since. The city fathers, in a fit of economy, put forth an advertisement for a new officer, to be paid a salary of seven thousand dollars. On the ground that this salary was not only inadequate for the responsibility attendant on the duties of the office, but also insufficient when compared with the salaries of other city officials (the town clerk receiving eleven thousand dollars), the *British Medical Journal* and *Lancet* refused to publish the advertisement. This was, of course, not only a protest of the journals but of the physicians whom they represent. As a result, the City Council took the hint, and appointed a committee to confer in the matter with a committee representing the British Medical

Association. The outcome of this conference was a compromise, the health officer to receive for the first two years seventy-five hundred dollars, for the succeeding two years, eighty-seven hundred and fifty dollars, and thereafter ten thousand dollars.

Had an inadequate salary been offered a health official in any city of the United States, we fear the profession would have found the matter of little concern. This is partly because politics, rather than preparation, enters into such appointments, but also due to the fact pointed out by an anonymous writer in the *Century*, who uses a caustic pen, but seems to know what he is writing about, that the average physician is antagonistic to, rather than favorably interested in, the local departments of health and their doings. [Excerpt from an editorial in the *New York Medical Journal and Medical Record*.]

Obituary.

ROBERT WORTHINGTON HASTINGS, M.D.

Dr. Robert W. Hastings died October 13, 1922, at his home in Brookline, at the age of fifty-six, after a short illness. For many years he had suffered with a cardiac affection.

A native of Warren, Mass., he was born August 4, 1866. Amherst gave him her A.B. and A.M. in 1888, and, entering Harvard Medical School, he graduated in 1893, then, after serving as medical house officer at Boston City Hospital and at the Boston Insane Hospital, he settled in practice in Brookline. He was instructor in Theory and Practice of Medicine and assistant in Pediatrics at Tufts College Medical School, where he was thrown into contact with the late E. W. Cushing, editor of the *Annals of Gynecology and Pediatrics*. Dr. Hastings acted as associate editor of this periodical, and on Dr. Cushing's retirement, in 1896, was editor until 1902.

Dr. Hastings served as resident physician and visiting physician to the Boston Floating Hospital, medical inspector of the Brookline Board of Health and Councilor from the Norfolk District of the Massachusetts Medical Society from 1903 to 1912.

He wrote many articles for the medical press besides his editorial duties. Among them may be mentioned "Noise as a Factor in the Causation of Disease," 1898; "Fresh Air in the Treatment of Children's Diseases," 1903; "The Boston Floating Hospital," 1903; "Clinical Study of the Bacillus Dysenteriae in Boston and Vicinity," 1904.

Dr. Hastings married, June 8, 1904, Miss Edith A. Earhart of Hagerstown, Md., who survives him, as do two daughters.

RECENT DEATHS.

PROFESSOR JAMES P. PAIGE, in charge of the Department Veterinary School of the Massachusetts Agricultural College, died Oct. 5th, 1922. He had been professor of veterinary medicine since 1891. He was a man of scholarly habits and scientific attainments, in addition to strong capacity for leadership. His legislative experience gave him influence so that he was able to secure an appropriation to build the veterinary laboratory. He was born in Prescott in 1862, graduated from the Massachusetts Agricultural College in 1882 and McGill University in 1888. He studied also in Munich. He leaves a widow, a daughter and two brothers.

FRANK WILLIAM ANDERSON, a fellow of the Massachusetts Medical Society, died at the home of his parents in Roslindale, September 29, 1922, at the age of 37. He had been associate in the section on radium and roentgen-ray therapy at the Mayo Clinic, Rochester, Minn., since October, 1920.

Correspondence.

THE WARREN TRIENNIAL PRIZE.

Mr. Editor:

At a meeting of the Trustees of the Massachusetts General Hospital, held October 13th, 1922, the following vote was passed:

Voted: That two prizes instead of one be awarded this year, the first prize to be \$500 and the second prize to be \$250; the award of the second prize this year, however, shall not be taken as establishing a precedent.

There were twenty-one essays submitted, the contestants being from the following countries: Poland, Germany, Italy, Hungary, England, United States.

The first prize went to the essay, "The Circulation in the Mammalian Bone-Marrow," written by Cecil K. Drinker, M.D., Katherine M. Drinker, M.D., and Charles C. Lund, M.D., all of Boston.

A second prize was awarded to the essay, "The Effect of X-rays on the Nuclear Division," written by James Mott Mayor, M.D., Union College, Schenectady, New York.

The reason for awarding a second prize this year was because of the difficulty in determining the relative merits of the first two papers.

Yours very truly,

F. A. WASHBURN, Director.

CORRECTION.

429 Washington St., Brighton, Mass.

Mr. Editor:

In the October 5th number, page 513, you refer to Kala Agar. Is not Kala Azar meant?

A. STANTON HUDSON.

[The JOURNAL is appreciative of the correction.—Editor.]

A DISCLAIMER.

17th October, 1922.

Mr. Editor:

In the *Advertiser* of Sunday, October 15, in an article by Elizabeth Rintels advertising the pretensions of Dr. Albert Abrams, I am quite falsely accused of having approved of Dr. Abrams' theories and methods. As I consider him one of the most gigantic frauds of the century, and as a number of persons have asked me whether I believed in Dr. Abrams, I wish to take this opportunity to state as emphatically as I can that neither he nor any other

person has had any authorization to use my name in this way, and that I feel the same disgust and indignation against his fraudulent methods that any other reputable physician must.

RICHARD C. CABOT, M.D.

MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY

The annual meeting will be held at the Boston Medical Library at 5.30 P. M., on Thursday, October 26, 1922. The Council will meet at the same place at 5.15 P. M.

R. M. GREEN, *Secretary*.

BOOKS RECEIVED FOR REVIEW.

THE JOURNAL acknowledges the receipt of the following books for review:

Oto-Rhino-Laryngology for the Student and Practitioner. Second English edition. By Georges Laurens. Authorized English translation of the fourth revised French edition by H. Clayton Fox. Published by William Wood & Co., New York. 350 pages. Price \$4.50.

A Text-Book on Gonorrhea and Its Complications. By Dr. Georges Luyt. Translated and edited by Arthur Foerster. Published by William Wood & Co., New York. Price \$6.50.

A Synopsis of Surgery. By Ernest W. Hey Groves. Published by William Wood & Co., New York. 621 pages. Price \$4.50.

Stedman's Medical Dictionary. Seventh edition. By Thomas Lathrop Stedman. Published by William Wood & Co., New York. 1144 pages, 15 plates. Price \$7.

Functional Nervous Disorders: Their Classification and Treatment.—By Donald E. Core. Published by William Wood & Co., New York. 371 Pages. Price \$6.

The Heart as a Power Chamber. A Contribution to Cardio-Dynamics.—By Harrington Sainsbury. Oxford Medical Publications. 248 Pages. Price \$3.75.

Ashby & Wright's Diseases of Children—Medical and Surgical. 6th Edition. Revised by H. T. Ashby and C. Roberts. Oxford Medical Publications. 769 Pages. Price \$12.50.

Clinical and Operative Gynaecology.—By J. M. Munro Kerr. Oxford Medical Publications. \$32 Pages. Price \$15.

Studies from the Rockefeller Institute for Medical Research. Reprints—Volume XLII. Privately published. 616 Pages. Price \$2.

Kirke's Handbook of Physiology. Tenth American Revision.—By Charles Wilson Greene. Published by William Wood & Co., New York. 820 Pages. Price \$5.

A System of Clinical Medicine—Dealing with the Diagnosis, Prognosis and Treatment of Diseases, for Students and Practitioners.—By Thomas Dixon Savill. Published by William Wood & Co., New York. 951 Pages. Price \$9.

Medical Record Visiting List for Physicians. Published by William Wood & Co., New York. Prices \$1.75, \$2 and \$2.50.

The Elements of Scientific Psychology.—By Knight Dunlap. Published by C. V. Mosby Co., St. Louis. 368 Pages. Price \$3.50.

Physical Diagnosis.—By W. D. Rose. 3d Edition. Published by C. V. Mosby Co., St. Louis. 755 Pages. Price \$5.50.

Physiology and Biochemistry in Modern Medicine.—By J. J. R. MacLeod. 4th Edition. Published by C. V. Mosby Co., St. Louis. 992 Pages. Price \$11.

UNITED STATES CIVIL SERVICE EXAMINATION. X-RAY MECHANICIAN.

Receipt of Applications to Close November 14, 1922.

The United States Civil Service Commission announces an open competitive examination for x-ray

mechanician. A vacancy in the Veterans Bureau, Washington, D. C., at \$200 a month, and vacancies in positions requiring similar qualifications, at this or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Applications.—Applicants should at once apply for Form 1800, and form for county officer's certificate, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

ELECTIONS AND APPOINTMENTS AT HARVARD UNIVERSITY.

The following elections and appointments of the President and Fellows of Harvard University have been consented to by the Board of Overseers:

Robert Bayley Osgood, Professor of Orthopedic Surgery, to serve from September 1, 1922. Leroy Matthew Simpson Miner, Professor of Clinical Oral Surgery, to serve from September 1, 1922. Fred Alexander Beckford, Professor of Prosthetic Dentistry, to serve from September 1, 1922. Lawrence Willis Baker, Professor of Orthodontia, to serve from September 1, 1922.

The following were appointed for three years from September 1, 1922:

Frank Turner Taylor, Assistant Professor of Clinical Dentistry. Amos Irving Hadley, Assistant Professor of Ceramics. John William O'Connell, Assistant Professor of Materia Medica and Therapeutics. Horace Leonard Howe, Assistant Professor of Clinical Orthodontia. Norman Beverly Nesbitt, Assistant Professor of Prosthetic Dentistry.

NOTE.

An unsigned criticism of an advertisement in the JOURNAL has been received. We are always appreciative of constructive criticism, but the general policy of editorial offices is to ignore unsigned communications. A written opinion only carries weight when the author is known.

THE NORFOLK DISTRICT MEDICAL SOCIETY.

A stated meeting of the Society will be held Tuesday, October 31, at the Massachusetts Hospital School, Randolph Street, Canton, at 3.30 p. m. sharp. The Hospital School is about six miles from Mattapan Square via Blue Hill Parkway, Canton Ave., past the Blue Hill Station through Ponkapog, bearing right at end of road, taking road marked Canton and Sharon, about one and one-half miles beyond, sharp left on Randolph Street. The buildings can be seen from this corner. Fellows not having an automobile will please be at Mattapan Square not later than 3 p. m. so that transportation may be furnished. Arrive at 3.30 p. m. Inspect buildings and school. Out-of-doors activities of the pupil patients of the school. Demonstration of the work and training. Inspection of the new one-hundred bed infirmary, probably the best equipped building of its kind in this country. Presentation of cases by the staff, with special reference to modern treatment of tuberculosis of the hip. Moving pictures and stereopticon. Business meeting 6 p. m.

A full attendance is urgently requested, as the work done by this institution is very remarkable. It may be well to mention that here can be found the greatest number of orthopedic cases in America.

The Censors meet for the examination of candidates, Thursday, Nov. 2, 1922.

Collation.

The Boston Medical and Surgical Journal

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Address.

THE PHYSICIAN AND THE SURGEON.*

BY HARVEY CUSHING, M.D., BOSTON.

"Why, in God's name, in our days, is there such a great difference between the physician and the surgeon? The physicians have abandoned operative procedures to the laity, either, as some say, because they disdain to operate with their hands, or rather, as I think, because they do not know how to perform operations. Indeed, this abuse is so inveterate that the common people look upon it as impossible for the same person to understand both surgery and medicine. It ought, however, to be understood that no one can be a good physician who has no idea of surgical operations, and that a surgeon is nothing if ignorant of medicine. In a word, one must be familiar with both departments of Medicine."

"No one can be a good physician who has no idea of surgical operations, and a surgeon is nothing if ignorant of medicine." This, Gentlemen of the College, is my chosen theme, and lest you think it a novelty of my own, I hasten to add that the paragraph quoted is transcribed from writings which exist for us only in manuscript, since Lanfranchi, called the father of French surgery, who expressed this sentiment, lived two centuries before Gutenberg.

When one considers the healthy unification of Hippocratic medicine, why *was* there such

a difference in Lanfranchi's time, and must we admit that the difference he lamented still exists in ours? Does the shadow of the mediaeval schism dividing medicine and surgery, and both from the church, which originated, history tells us, in a thirteenth-century papal decree forbidding the participation of the clergy in any procedure involving the shedding of blood—does the shadow of this schism still lie upon us? What difference, after all, is there between physician and surgeon except in the kind of cases each of them chooses to treat and in the variety of therapeutics applied? And in view of many centuries of separation, do we tend toward reunion or further separation? These are questions which concern in no small degree the very existence of this College.

THE PHYSICIAN'S PROGRESS.

We certainly have stumbled along widely divergent therapeutic ways, we lay physicians and lay surgeons. The great physicians of ancient days were first of all given over to a polypharmacy inherited from the Arabians, then to the Law of Signatures with its astounding botanical therapeutics, then to a period of heroic bleedings and purgings and sweatings. Homeopathy followed, and taught the profession a much-needed lesson, and finally cellular pathology and bacteriology came to revolutionize physic by arousing a profound skepticism in regard to the efficacy, whatever the dose, of most of the drugs abundantly prescribed for symptomatic purposes. This gave to the tradi-

* Presidential Address before the American College of Surgeons, Boston, October 27, 1922.

† Cf. Henry E. Henderson's *Gilbertus Anglicus*. Privately printed. The Cleveland Medical Library Association, 1918, p. 77.

tional practices a staggering blow, and the coal-tar products with synthetic chemistry finally closed the physic-garden, drove plants, with a few notable exceptions, from the pharmacopœa, and Botany from the curriculum.

While all this was going on, much time was spent in evolving "systems" of therapeutics based upon bizarre interpretations of pathology which followed one another in succession, the Brunonian doctrine being one of the last, whereby diseases were either sthenic or asthenic; and a century and a half later we still hear "asthenic states" spoken of as ones which need supporting treatment by alcohol, so that even in these dry days the physician is privileged to prescribe the drug that was Brown's personal undoing, though he lived north of the Tweed.

It is an old saying that the wisest physician is he who knows the uselessness of the most medicines. Nevertheless, in an unfortunate alliance with the apothecaries, at about the time the surgeon was entangled with the barber, the eighteenth-century physician was accustomed to write prescriptions for patients he hadn't seen, while enjoying good company in the coffee-house. Some measure of common sense in matters therapeutic was finally knocked into the profession by the growing appreciation of the self-limitation of many diseases, by the success first of Hahnemannism, and later of other cults like Mother Eddy's, which revived the therapeutic importance of a neglected principle well known in the Aesculapian temples—the influence of the mind upon body ailments, particularly when imaginary in large part, as so many of them are. Mr. Dooley once sagely remarked that "if the Christian Scientists had a little more science and the doctors more Christianity, it wouldn't make much difference which you called in—provided you have a good nurse." And there is no doubt but that Florence Nightingale and her successors have also had much to do with modifying our modern therapeutics.

But the profession has not entirely regained its therapeutic sanity under these benign influences. Those uncritical and poorly trained physicians who live in glass houses and give welcome to the prescriptions of certain pharmaceutical establishments which elbow their way to our desks on leaflets and postcards, cannot throw stones at the laity who give no less a welcome to nature-healers, herbalists, chiropractors, bone-setters, patent-mediciners, and other charlatans beyond enumeration. Little wonder that the wiser heads, both lay and professional, have about come to the conclusion that we had better limit the number of students in our schools, and let a smaller number, better trained, devote themselves to the prevention of disease, and, through public-health measures, keep the bulk of the community well in spite of itself, in much the same way that we protect our livestock.

THE SURGEON'S PROGRESS.

While all this has been going on through the centuries, in physic, the surgeon was pursuing an entirely different way, independent of tradition, and, for the most part, be it said, in rather bad company. A handier-fighter, often a rude, uneducated, and ignorant though practical fellow of itinerant proclivities, he was rarely utilized in the schools, and when so employed, merely as the tool of the more learned and socially more respected physician. He had broken away from established authority: he ventured to write in the vernacular, and sometimes to operate without the physician's permission. Indeed, he did many unorthodox things. However, he was greatly needed, especially in time of war, as Charles V used Vesalius; as four successive Bourbons used Paré; Elizabeth, William Clowes; Charles I, Richard Wiseman; and, to give an example from more modern times, as Napoleon used Larrey. Thus he came to be respected at court, even though he was kept out of the faculties, where he was looked upon with scorn not untinged with jealousy. An outcast both of church and profession, he finally climbed into professional and some measure of social esteem about the middle of the eighteenth century by way of the barber-pole. But his long and quarrelsome alliance with the Guild of Barbers, humiliating enough, was peaceful when compared with the quarrels of the physicians and apothecaries.*

A short century after the surgeons succeeded in breaking away from this alliance with "barbery" and were readmitted into the schools on the same footing as the physician, there came Lister on the heels of Pasteur, to revolutionize, not only surgical therapeutics, but, at the same time, by the introduction of surgical cleanliness, the very hospitals in which both physic and surgery are practised. And so it has come about that while the physician today has busied himself in perfecting elaborate methods of diagnosis for many chronic disorders, he rather shrugs his shoulders over therapeutics; whereas, on the other hand, treatment by operative methods has developed amazingly, and there is no gainsaying that in the hands of some it tends to run away with itself as a therapeutic measure.

REUNION OF PHYSICIAN AND SURGEON.

Thus, in very rough outline, the two main

* Sir William Stokes in an article entitled "The Altered Relations of Surgery to Medicine" (Tr. W. Lond. Medico-Chir. Soc., 1888, iii, 126-7), wrote as follows:

"...In the interests not only of the social, but also of the scientific position of the surgical profession, the injunction, such as it was, of these two corporations (the Surgeons' and the Barbers' Company) was undoubtedly a calamity, and it helped to give the physicians the vantage-ground which they occupied so long, and in which they were still further strengthened by an enactment made in Elizabeth's reign prohibiting surgeons from prescribing internal medicines. As a proof that the inferior position, socially and scientifically, was maintained up to a comparatively recent period, I may mention as a fact which I learned from Mr. Colles, who informed me that his father, Abraham Colles, had stated that at the commencement of his professional career in Dublin, when a consultation on any important case was held, the surgeon was not as a rule permitted to be in the room where the physicians held their deliberations, but, after the consultation was over, he was informed whether his services would be required or not."

clinical branches of Medicine, long separated both socially and professionally, have grown in ways so divergent that the fact of their origin from a common stem has become obscured by an accumulation of therapeutic débris left by a succession, on the one hand, of theorists who, like the modern endocrinologist, may perhaps see the patient as a whole, but through a mist, and by the modern surgical specialist who sees only a part, but that part so disproportionately he is tempted to remove some of it.

Should these therapeutic groups be allowed to riot in their growth unmolested, branching in all directions at will, or will they bear better fruit if grafted or fertilized or cut back remorselessly? All agree that the time is at hand at least for some judicious pruning, both in physic and surgery, and for the removal of sufficient rubbish to permit the main stem of Medicine and its roots of Science to be properly exposed and aerated. This process will be good for both root and branch, but more particularly will it benefit the branches if it has the effect of making the surgeon less of a pure technician and more of a physician, and the physician more capable of utilizing some of the minor procedures of surgery and with a better understanding of the major ones.

"In a word, one must be familiar with both departments of Medicine," and this is no less true today than in the thirteenth century or in the days of Hippocrates. By no means did Lanfranc, in the statement which has been quoted, mean to imply that physicians must practise surgery—merely that they will be the better physicians the better their understanding of surgical therapeutics; and, on the other hand, that no surgeon should be regarded as qualified to undertake operative procedures who is not primarily and thoroughly grounded in medical diagnosis. A graduate in Medicine may have a very wide knowledge of surgery or even be a successful teacher of the subject without necessarily being himself an operator, just as one may have a thorough knowledge of music without being a performer. So, also, there may be many activities in which a physician may engage, beneficial to his profession, without necessarily "practising" or prescribing drugs.

However, when in common parlance we differentiate physician and surgeon we do so only on the basis of therapeutics, and, granting the same underlying knowledge of disease, this is all that separates, from Medicine proper, homeopathy and osteopathy and all the other therapeutic cults, each of which reaches some degree of sanity so soon as it undertakes to perform surgical operations, as in time it is inevitable each one of them should do. There is nothing homeopathic about the scalpel, and when surgery was permitted to creep into this doctrinaire school it was near its end. The osteopathic and chiropractor and eclectic and all the others

may beware of this, for so soon as they come to engage in surgery, then a thorough medical grounding will be necessary, so that the natural end of all such cults is, that, dead or alive, they will become swallowed in time by the general profession, distasteful as the dose may be.

METHODS OF TEACHING.

Unquestionably, what chiefly influences the direction of its growth is the way in which Medicine as a whole is taught—the way in which its various subdivisions are presented to the student, and the relative stress laid upon them. Whatever their spirit of altruism, most of our students enter the profession as a means of livelihood, and are likely to be influenced by what seems to them, given an ordinary degree of ability, to be the most likely road to an income-producing end, whether it be as a laboratory worker, or public-health official, or physician, or surgeon, or specialist of any sort. A disproportionate amount of teaching, or better and more personal teaching in one subject over another, whereby the student's interest is aroused and he begins to feel a certain amount of confidence in his knowledge, will inevitably lure in that direction the larger number.

The periodical turnover in our curricula is an evidence of the fact that faculties show a perennial dissatisfaction with existing conditions, and strive each of them to find the proper average allocation of subjects, little realizing that it makes no great difference—that the fault lies with us the teachers, not with the curriculum, for Medicine can be successfully taught from many angles if only students are properly stimulated and encouraged to observe and think and do for themselves. But what has become particularly apparent of late is that the curricular tree has become overloaded by grafting upon the clinical branches an undue profusion of specialties, few of them of fundamental importance even though they doubtless bear fruit of marketable value which dangles before the student's eyes so alluringly that he is prone to forget, or to overlook entirely, the source of origin of the specialty in general Medicine.

There has been a great reaction against this, and our supposedly more progressive schools are engaged in lopping off a number of these clinical branches. Some schools, indeed, have come to pay so much attention to the root and stem that, if we do not beware, the top will be cut back so far that there will be neither foliage nor fruit—no medical practice whatsoever—and thereby encouragement will be given to the growth of every conceivable form of quackery, which will spring up around us as have the schools of the chiropractor, to fill the depleted ranks of the profession; and the indifferent public is probably worse off than it was before. Far better than this would it be for us to send out after two years of clinical study alone, with some additional knowledge of public

health, a group of men to be licensed as Bachelors of Medicine, who at least could attend to the ordinary ailments and health of the rural districts, where public opinion is largely made and from which legislation, detrimental or otherwise to the interests of the profession in its campaign for sanitary measures, is likely to emanate.

TEACHING WITHOUT THE PATIENT.

It is a curious commentary on our methods, that, while we have come to emphasize the importance of teaching the pre-clinical sciences by practical laboratory exercises so that the student may at least have some first-hand knowledge of the scientific method and may learn to interpret and observe for himself, we have tended, if not to abandon, at least to postpone to the end of the course, these very methods so far as the clinic is concerned. To be sure, we have long outgrown the time-honored quiz as the basis of teaching, than which nothing could have been less practical. A student may know his textbook thoroughly—may, for example, give without hesitation, when asked for them in an examination, all the symptoms of that vanishing disease, typhoid fever; but if he has to utilize his own observation, senses, and wits, and dig out, himself, the essential symptoms and signs which make the diagnosis possible, he is so incapable of reversing his acquired mental processes that the idea of typhoid fever never enters his bewildered head. Only by prolonged contact with the patient at the bedside can he come to take a good history, to make a proper examination, to learn to separate the wheat from the chaff of the patient's complaints; all of which must precede the interpretation and the treatment of the existing disorder.

The so-called case system of teaching has become highly developed and popularized in certain schools—a diagnostic exercise whereby, through the process of elimination and logic, the predigested data acquired by a variety of people are presented for discussion and analysis. Such a method is excellent for training in the law, since in the legal profession one argues on the basis of authority and accumulated testimony, in accordance with which satisfactory judgments can be rendered and punishments meted out without even seeing the culprit. But the medical profession has long since broken away from dogma and authority, and though the case system, given a lively instructor, provides an interesting exercise in medical diagnosis far superior to the old-time quiz, when carried far it has the great danger of making logicians of the students, rather than practical physicians. There is some danger lest the student be led to feel that it is unnecessary, for a diagnosis, to examine the patient oneself—someone may get the history, another make a physical examination, still others supply the x-

ray findings, the laboratory tests, and so on, while all that the modern physician needs to do is to sit and expound, as did the mediæval anatomist while the barber did his dissections for him. Excellent as they may be, there is nothing practical about such exercises, and if over-emphasized they are bad for both teacher and student. For the teacher because he gets out of the habit of making his own thorough examination of the patient; for the student, who gets an impression that the diagnosis, which an autopsy may confirm or otherwise, is the only thing of importance, and treatment for the most part futile. Meanwhile the patients in their homes, in the dispensary, even those in the wards, would like to know what these professors who admittedly are having difficulty in telling, without looking at the organs, what certain people died from, are going to do to relieve their individual backaches or troublesome coughs—and perhaps it would be just as well to go to a chiropractor next time. Indeed, it takes a good deal of explaining to make clear that a lumbar puncture, bismuth studies under the fluoroscope, a blood-urea examination, metabolism observations, Wassermann tests and electrocardiograms made by as many different people, most of them technicians at that, each in their several laboratories—that all these things are necessary preliminaries to the recognition of his malady. All too often, alas, the knowledge thereby gained fails in any way to make him more comfortable or to prolong his expectation of life. The patient submits to all this and is very glad to know, in the abstract, that diagnosis has become a laboratory science which employs the modern principle of piece-work, and that the medical profession looks forward to the prevention of many existent diseases from which posterity will be exempt—but “meanwhile, doctor, what can you do to relieve my present discomforts so I may get back to work?” He is inclined like the Irishman to ask, “What has posterity ever done for me?”

THE HOME-TRAINING IN MEDICINE.

The curriculum in all of our schools still retains one essentially practical clinical course to which attention may be drawn—a course forced upon us by Boards of Registration, else even this might be curtailed or lost. It exists in the case of obstetrics, for no student is allowed to get his degree unless he has actually, himself, supervised a certain number of confinements. Here is an actual test of the medical novice's resources, the one practical test of what he may be able to do in a possible emergency in a patient's home. Nor would any of us wish to see the students robbed of this invaluable experience. On the contrary, it would be an admirable thing if the principle could be extended and every student, before his graduation, required under the control and supervision of his teachers or the district physician of the community, to engage in an actual house-to-house practice,

armed perhaps with nothing more than a clinical thermometer, a stethoscope, his fingers, and wits, supplemented perhaps by a microscope and a few anilin dyes. In this way he might learn something at least of the living conditions which modify the health of the people he now only meets in the dispensary, surrounded by all of the paraphernalia and instruments of precision supposed to be necessary for a diagnosis. It is a leaf one might take from the book of certain of the training-schools for nurses whose candidates must prove their capacity to engage in actual home-practice before they can qualify for a degree. One of our highly trained young physicians, long-time resident in a teaching hospital, recently confessed to me that he had just been through one of the most valuable experiences of his ten years of medical study. He had passed his summer on an island where was a large summer community, and in the absence of any local physician he had volunteered to hold office hours and prescribe for the needs of his fellow-sojourners, his principal armament being a thermometer, his microscope, some bandages and a few simple drugs. Never before had his powers of observation and his common sense been so thoroughly exercised.

THE SURGEON IN OTHER COUNTRIES.

It is a curious anomaly that the British surgeon, taken as a whole, is probably in practical ways a better trained physician than is the American surgeon, and yet he rarely possesses a full medical degree, and is apt to pride himself on not being called a doctor. Here, on the contrary, the surgeon, though graduated a Doctor of Medicine, not infrequently lapses into the state of being little more than a craftsman who, except for the external parts of the body, makes little or no pretence at diagnosis but expects the "internist," often without any expression of an independent judgment, to show him the way.

Different countries—indeed, different parts of the same country—vary greatly in the attitude of physicians or surgeons toward their problems. An illuminating experience of this past summer, during an all-too-short service as *locum tenens* for Mr. George Gask at St. Bartholomew's Hospital, has left me with the impression that the British student gets a more practical clinical course based upon far better training in anatomy and gross pathology than do most of our students, and that he is far less inclined to lean upon laboratory accessories in making his diagnosis. He, for a longer time and more intimately, is brought in contact with the ninety per cent. of human ailments upon which complicated laboratory tests have no special bearing, and through practical experience is apt to arrive at a reasonably sound conclusion in regard to his patient's disorder, and have a shrewd idea of the appropriate form of treatment. True, he may miss some of the more rare conditions, for which, after all, little can be done therapeuti-

cally—conditions which our students, with their vastly better laboratory facilities, might recognize in all likelihood. But, should we put side by side at work in a small town the average product of these two methods of teaching, I am inclined to think that the former would be the more resourceful, and exercise greater wisdom though possessed perhaps of less learning. And, after all, the strength of a profession, as of a nation, is represented by its average product.

CARE OF THE MINOR AILMENTS.

One looks in vain in the curriculum for a course on the common-sense treatment of minor ailments. It has been said by a wise and philosophical lay observer of the profession that so far as he can see, the only difference between the so-called "practical" doctor and the "scientific" one who has had a thorough laboratory training, is that the latter is more likely to cure his patients. But with all personal sympathy for this point of view, the community, particularly its rural portion, still has an enormous need for the common-sense practitioner, who for his four undergraduate years, under careful supervision, has seen less of complicated laboratory methods and more of the handling of sick people afflicted with the common everyday minor injuries and maladies. Otherwise we shall utterly abandon this all-important work to quacks and charlatans, who may become very skilful at it, in spite of their chicanery. I am not at all sure but that, for most of our schools, some measure at least of the French system would be best, whereby from the very outset of their course medical students are brought in direct contact with patients, and the laboratory courses are given conjointly and possibly prolonged throughout the four years.

We must somewhere and somehow strike a middle ground between over-training in the laboratory and under-training at the bedside, or the reverse. Certainly at the present time our graduates—many of them at least—no longer feel that the rôle of the country doctor, or even the general practitioner in the town or city, is at all an alluring one, even a possible one, so dependent have they become on complicated laboratory findings in arriving at a diagnosis. Unquestionably, there is an economic element which also enters into this, for a training in Medicine at the present day is unduly long and expensive, entirely disproportionate to any possible returns to be gained from a rural practice.

STRESS UPON BIOLOGY RATHER THAN ANATOMY AND PATHOLOGY.

Unquestionably, the present stress laid in this country upon the pre-medical laboratory courses, particularly those in chemistry and physiology, has greatly influenced the entire point of view of the physician, who must have a calorimeter and an electrocardiograph with a technician to operate them, if only to keep in fashion, little

realizing that they are scarcely more than research instruments. There has been much talk about the modern physiological schools of physic and surgery, and I presume this means that it is less fashionable for the clinicians to grub in the pathological and anatomical laboratories than formerly. No doubt this is the case. Anatomy and pathology just now appear to the unimaginative to have been thoroughly explored; the pioneers have taken the surface washings, and rather than dig deep for gold we prefer to look elsewhere for novelties and chance findings.

The interest of the students in these two particularly essential subjects has unquestionably flagged, for they naturally reflect the attitude of their teachers. I know no better illustration of this than the fact observed in many hospitals, that the physician is less apt than formerly to follow his patients to the operating room, and appears to be less eager than in days gone by to have a view, during life, of the pathological lesion. His place there has been taken by the radiographer who is more often on hand to see his diagnoses confirmed or otherwise. This may be for the reason that the disclosures at the operating table relate to regional pathology, and the surgeon rarely exposes lesions which will enlighten those interested in blood urea, the Wassermann reaction, calorimetric or electrocardiographic estimations.

THE PHYSICIAN-SURGEON.

Does this not mean that the surgeon has become the internist, or, put another way, that the internist (as the physician was once called) has come to do his own surgery? If this be so, it behoves the surgeon to accept the fact that he must be, primarily, a good physician—and the physician, loath as he may be to admit it, that he has undergone a metamorphosis. A year ago this College gave an honorary fellowship to the Professor of Medicine of the University of Stockholm, who had evolved an operative method, entailing great skill, whereby the adherent lung may be completely collapsed in the treatment of pulmonary tuberculosis. A distinguished member of this College, whose name we perpetuate by an annual oration, first conceived the idea of putting the diseased lung to rest, but it remained for Professor Jacobæus, a physician, to add a further and important step to the procedure by the intrathoracic division of pleural adhesions—a step which had not been undertaken even by so imaginative and radical a surgeon as was John B. Murphy.

This, indeed, was a very significant and unusual occurrence, but, properly interpreted, the giving of this fellowship was merely an admission of the successful invasion of the surgical field by one who occupies a Chair of Medicine, and the prompt recognition of his contribution by the surgeons. Similar therapeutic invasions of what was once "internal medicine" have been made by those who because they handle a scalpel,

and are willing to set broken bones, are called surgeons, with no corresponding recognition, so far as I am aware, by societies of physicians.

There are, however, certain exceptions in the case both of individuals and of special societies—men who without disrespect are called Surgeon-Generals of Army, Navy or Marine Corps, are apt to hold membership in societies both of physicians and surgeons, even though, like the lamented Gorgas, they may be essentially sanitarians—societies, too, which recognize the inadvisability of confining their numbers to those averse or otherwise to a participation in surgery. The neurologists, for example, have opened their membership to so-called neurosurgeons, to the unquestioned benefit of those who do, and those who do not, care personally to employ operative methods of treatment. It has made the surgeons strive to be better neurologists, and given the neurologists a better conception of what therapeutic contributions their surgical colleagues are capable of making. It enables both groups better to keep their feet on solid ground, and there is no danger that the society will ever become so overrun by the surgeon as to let operative theory fly away with itself and jump over the moon.

TENDENCIES IN PHYSIC AND SURGERY.

May I indicate the direction of our present drift, as physicians and as surgeons, by citing two recent examples from my own clinic—they are doubtless extreme examples but they will serve my purposes. Patient Number One was referred for diagnosis from a sanitarium which she had entered because of headaches, and where she had had a long and expensive sojourn. She brought with her a sheaf of records detailing special studies, made by different people, on her blood (even to the coagulation time), cerebrospinal fluid, stools, fields of vision, metabolism, alveolar air and carbohydrate tolerance. It was an impressive array of findings, all within the normal limits of error. The x-ray, however, showed a "closed-in sella." Pituitary tablets were prescribed without benefit, and she was finally advised to undergo an operation, and sent to us for that purpose. So far as could be determined, she was an over-conscientious and overworked medical librarian greatly in need of a long-postponed vacation, who incidentally had been reading a popular book on the ductless glands.

In contrast to this, let us turn to the surgeon-specialist and his worst fault, in that he often fails to see the patient whole. At the moment of this writing, Patient Number Two enters the hospital—a poor fellow who for several years has been having frequent uncinete seizures, associated with a vivid olfactory impression. Meanwhile, he has had nine intranasal operations in separate sessions—a septal resection, ethmoid, sphenoid and both antra opened and drained, turbinates removed, and finally all his teeth ex-

tracted. Of course we smell with our noses; the patient complained bitterly of a disagreeable odor, *ergo* nasal operations. What could be more simple? That he had during all this time an homonymous hemianopsia was not observed. It is a venturesome and expensive thing to consult a surgical specialist who does not see beyond his own—or his patient's—nose. And this represents for all of us the great danger of surgical specialization, when carried to an extreme, whether it be in rhinology, gynaecology, neurology, or what you will. And when the specialty removes itself from contact with general Medicine, and retires to an isolated hospital given over to a single class of cases, it is a danger scarcely to be avoided. Indeed, a ward in a general hospital, so given over, may become no less a place of isolation with its inevitable narrowing tendencies.

A wise physician and teacher, in discussing internal medicine as a vocation, once said that "the manifestations of almost any one of the important diseases in the course of a few years will box the compass of the specialties." It is no less—perhaps even more—true of surgery, and for this reason I believe it to be fundamentally essential in a general hospital, however inconvenient for the attendants, that conditions represented by the specialists shall be scattered in the wards amongst the patients still grouped under general surgery, so that staff, house-officers, nurses and students alike shall at least continue to have some due sense of proportion regarding general surgery, and surgical specialization, and the relation of both of them to Medicine.*

THE RÔLE OF THE COLLEGE.

This College of Surgeons in its short life has assumed some very responsible functions. It is playing a not unimportant rôle in international affairs by bringing together through the common bonds of professional interest the surgeons of this western hemisphere—of Canada, Mexico and South America, as well as of the United States. We have much to learn from each other. Another most important task it has undertaken is to improve, and in a measure to standardize, the work done in our larger hospitals. The modern "Survey" with public ventilation of its findings is one of our most advantageous methods of bringing about reforms. So our hospitals, some seven hundred in number, which have over one hundred beds, have been classified, with the result that improved methods of organization have been adopted which have enormously safeguarded the patient—particularly the patient destined to undergo the hazards and aftermath of an operation. It has been an expensive and laborious task, this survey, but a task well worth while, and it is now to be extended so as to

include the smaller community hospitals of over fifty-bed capacity, which are far and away more numerous.*

The College, too, has from the outset taken a vigorous stand against that abomination which prevails, it is said, in some parts of the country to such an extent that public confidence in the profession has been seriously shaken. It is a matter which bears some relation to these very trends of physio and surgery which I have endeavored to make clear earlier in this address—the surgeon becoming a pure operative technician, incapable of making a diagnosis—the physician, impoverished in therapeutic resources, and with so poor a conception of surgery that he will let out his patient to the lowest bidder willing to operate at his dictation, and divide the purse! This takes us back to the abuse of the Middle Ages. It is an abuse which could not possibly exist in any community if the surgeon was trained to make his own diagnosis, and if the physician would refuse to employ a surgeon incapable of arriving at an independent opinion regarding the necessity or advisability of an operation. For such a man is apt to be equally neglectful of what is often the most important part of every surgical procedure—the after-treatment. The physician who lends himself to such a practice is in the position of one who prescribes a dangerous drug to his patient without knowledge of its dosage or action, for there is no drug in the pharmacopeia so dangerous as misapplied surgery.

It seems to me that it would not be a bad idea if in our tests of eligibility for fellowship in this College—tests which not only are those of moral and professional character but of operative experience and skill—we should require something more than the mere report upon a fixed number of major operations successfully performed, but should require, as well, information as to whether the diagnosis of these cases were the result of the candidate's own personal observation, or whether they were made for him by another.

We have seen that the present trends affecting the physician and surgeon are, on the one hand, toward preventive medicine and good nursing, which lessens the importance of therapeutics; on the other, in surgery, an ever-increasing subdivision and specialization which tends to magnify the importance of mere handiwork. Prevention, it is true, can also be applied in surgery. Many industrial accidents can be prevented; the rule of safety first can be followed; there would be no more gunshot wounds if fire-arms and war were abolished; if we can finally stamp out tuberculosis and eliminate cancer, there will be far less for the surgeon to do. If women did not have children, if people did not drink, if we

* I do not know that a proposal that my medical colleague and I exchange places for a few weeks each year will ever be acted upon, but we at least hold a conjoint visit of the medical and surgical staffs once a week, and thereby endeavor to see Medicine whole, and to encourage our students to do so.

* It may be noted that 75 per cent. of the one hundred-bed hospitals had adopted by 1921 at least the minimum standards of acceptability, whereas in 1918 only 13 per cent. of the 692 hospitals surveyed had been accepted.

† It is significant of the success of some of the activities the College has engaged in, that laws against fee-splitting have been adopted by many State legislatures.

could only keep the policeman off his feet, the housemaid off her knees, the miner off his elbows, the aviator out of the air, the boys away from football; if all children in goitrous districts were given a little iodine, there would be less need for the surgeon. But we do not yet live in the Isle of Utopia, and however much the need of the physician may be lessened through the agency of preventive medicine, by eliminating disease as typhoid has been largely eliminated, and yellow fever, and as malaria can and will be, and many nutritional disorders, and perhaps goitre, the surgeon will continue to be needed, and I cannot see but that he must become a better and better physician.

When physicians acquire a more intimate knowledge of surgery, fewer people in need of operative procedures will be turned over to the surgeon too late, after delays caused by an inordinate number of unnecessary laboratory procedures. When surgeons are required to have a thorough grounding in general Medicine before practising their handicraft, fewer unnecessary operations will be done, and many of the evils which exist in their professional relationship with physicians will be eliminated.

All of which was said as well and more briefly by Lafranc: "No one can be a good physician who has no idea of surgical operations, and a surgeon is nothing if ignorant of medicine. In a word, one must be familiar with both departments of Medicine."

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(Continued from page 607.)

"PRINCIPLES TO FOLLOW IN BUILDING CHILDREN'S WARDS AND WARDS FOR CONTAGIOUS DISEASES."

BY DR. D. L. RICHARDSON, PROVIDENCE CITY HOSPITAL, PROVIDENCE, R. I.

It is very appropriate that the construction of wards for children and contagious diseases be discussed together. In 1913 in a paper read before the A. M. A. at Atlantic City, the author pointed out that the same principles in the construction and management of contagious hospitals apply equally well to children's hospitals, and subsequent experience had confirmed that belief.

I need not emphasize to you how frequently infectious diseases break out in children's hospitals. I am not aware of any published statistics upon the subject, but many superintendents have stated that some of their wards have been under quarantine at least half of the time. This may be a high estimate, but even if wards are

closed because of contagious disease during only a third of the time, it results in great economic loss and usefulness of the hospital—to say nothing of the notoriety such outbreaks sometimes occasion.

The manner in which ward space is divided bears an important relation to the spread of infectious diseases, once introduced. But it is not the only consideration, not even the most important. Too much attention has been paid to construction and too little to the careful examination of every new patient, to careful supervision once the patient is admitted, and the utilization of strict cleanliness, medical asepsis, by nurses and doctors. The purpose which divisions of the ward serve, is to keep patients apart, for the danger of atmospheric infection has been conclusively shown to be of very little importance. It is assumed, therefore, that it is not necessary to discuss aerial infection as bearing upon the construction of children's hospitals of whatever kind. That it may take place at very short range, as when beds are very close together or a patient coughs in the doctor's or nurse's face, is possible. Even under such conditions contact still is the most important factor in transmission. Whatever the means employed for separating patients from physical contact, they operate also to interrupt possibilities of air infection. This statement is for the benefit of those who still cling to this favorite misconception.

To fully appreciate the proper type of construction it is necessary to briefly consider how infection enters a hospital and how it spreads after once admitted.

Ask almost any hospital superintendent how contagious diseases are introduced into hospital wards and he will invariably say, by visitors. While it will not be denied that this factor is entirely a reasonable assumption, particularly when children are allowed as visitors, it operates in a very small percentage of instances as the cause of hospital outbreaks. The real factors are the patients themselves. It cannot be too strongly emphasized that exact diagnosis of infectious diseases is impossible. There is such a large number of cases which cannot be recognized clinically. Of all patients admitted to a hospital, medical cases suffering from acute disease are the greatest menace. A child is admitted with a diagnosis of broncho-pneumonia, which is no diagnosis at all, may be suffering from measles even in the absence of a rash. Another child may be admitted for tonsillitis and really be suffering from either scarlet fever or diphtheria. Oftentimes children with a cough, treated as a bronchitis, are suffering from whooping cough. Rashes are overlooked or wrongly interpreted.

These things are pointed out to show the difficulties of the situation. In addition to mistakes in diagnosis, children may be admitted during the incubation period of some infectious disease, which not infrequently gives rise to an out-

break. And lastly, of all hospital admissions a certain percentage of patients are infectious disease carriers. For practical purposes every outbreak arises from one of these three sources.—unrecognized cases, patients in the incubation period, or acting as carriers. While visitors and packages may, theoretically, be a possible avenue of infection they can be ignored, and the investigation of the source of any outbreak should be devoted to a careful examination and supervision of all patients in the ward where the outbreak occurs.

The first important hospital rule should be, that every new patient be seen promptly by a competent diagnostician and the examination not left to an interne. In small hospitals it may not be possible to get a physician to see every patient on admission, but the patient should be treated in a separate room until the admitting physician has seen him. Every children's hospital should delegate to some resident or visiting physician the responsibility of admitting all new patients, of designating the ward or room where they shall be treated, and be called at once to see every patient who develops a rash, unexplained temperature, sore throat or other suspicious sign, as an important method of minimizing the danger of outbreaks of contagious disease.

Realizing that even the best diagnostician is liable to error, it is essential to so construct and conduct the wards that even if infection is introduced it will be limited to the least possible extent.

The spread of infectious diseases within the hospital is accomplished by actual contact between patients and indirect contact by nurses' and doctors' hands, nursing utensils, dishes, etc.

To separate the patients from physical contact three means may be employed: Putting the beds some distance apart, the interposition of a partial partition between patients, the cubicle system, and the construction of separate rooms each to contain few patients. In older hospitals which are provided with large open wards, beds may be spaced at a distance of five or six feet, or better by the construction of cubicles. Space may be conserved by the latter method, for the beds may be placed much nearer together, and yet the danger of the children coming into actual contact is slight because of the partial partition. In the construction of new hospitals, separate rooms should be constructed with enough glass in the walls to provide for easy observation and contentment of the patients by permitting them to see other patients in adjoining rooms. The installation of a large amount of glass in corridor or inter-room walls is a mistake because it is so expensive to clean and makes privacy impossible. Particularly in contagious wards one never knows what diseases to expect nor what ages will be affected, and construction should be so planned that all wards may be used for any disease or for either children or adults. Physi-

cal separation of the patients is accomplished by one of these three methods. If it is desired to keep from actual contact, direct or indirect, patients in the same room, some kind of a card should be hung on the bed to indicate this to the nurse.

Children can thus be grouped singly, or in larger groups, those who are suffering from the same disease being confined to one group, or for the purpose of dividing them in small units between which there is no contact, direct or indirect. The importance of dividing wards for children or contagious diseases into rooms to contain one, two, or three, or at most six patients, cannot be over-emphasized. The partitions separate the patients into small groups and they can be easily confined to their own rooms, which is almost impossible in a large ward even if the beds are well spaced. After the lights are out at night or even in the day it is impossible to keep them from getting out of bed and sometimes coming into contact with each other.

However, if every patient had a single room throughout hospital residence, infection might be carried from one room to another by indirect contact by nurses, doctors, utensils, etc. It is absolutely necessary to practice strict cleanliness between different groups of patients, particularly when they are in the acute process of the disease. Once infection is introduced into a ward or room containing twenty or thirty or more patients it spreads to nearly all susceptible children. If, however, the units or rooms are small, infection will be confined to those in the same room or unit and will not spread to other rooms if strict cleanliness be employed.

The ward construction to be described applies equally well to wards for general diseases of children or for one kind of infectious disease. It is of great advantage to construct all wards along similar lines so that the hospital capacity will be elastic.

Each ward or floor should be composed of small rooms for new patients, larger rooms for convalescents and the necessary utility rooms located between the two. The rooms for new patients should be designed to contain one or two beds, rarely three, and should accommodate about 50 per cent. of the ward capacity. All new patients should remain in detention for one week, during which time a more accurate diagnosis can be made to determine whether the patient is suffering from a contagious disease when in a general hospital, or from other infectious disease than the one treated in that ward if in a contagious hospital. The convalescent rooms, which should accommodate one-half the patients, should not contain over five or six beds each. A child might be under observation for a week in a detention room yet after transfer to a convalescent room develop measles or chicken-pox or some other disease with a long incubation period. If there are at most five other patients in the convalescent room part of them are like-

ly to be immune and the outbreak will be confined to one or two patients. This presupposes that patients in different convalescent rooms on the same floor are not allowed to mingle, that nurses' and doctors' hands be washed between rooms, and all utensils sterilized each time used.

The division of the ward floor into small rooms will be almost useless unless every room is provided with a lavatory where the nurse or doctor, after handling patients in the room, can scrub their hands in running water which can be turned on by foot or forearm valves. It is also essential that the kitchen be provided with a utensil sterilizer where all dishes can be boiled before washing, and the utility room with another sterilizer in which bed pans and urinals can be boiled after emptying. There should also be a clothes chute into which all linen, infected or otherwise, can be dropped piece by piece as occasion arises. The underlying idea is to consider all rooms occupied by patients infected or potentially infected, while the ward corridor and utility rooms remain uninfected. In the control of infection in a contagious hospital this principle is essential to maintain, and, what is more, it simplifies and makes consistent the whole technique.

The materials used for wall and floor construction are quite unimportant, for infection from them is very remote. It is advisable to use such materials as can be easily cleaned with soap and water. I am sure that excellent results can be obtained in even the temporary wood-constructed hospital if the rooms are small and provided there are lavatories, if there are sterilizers for utensils and the ward managed by a trained personnel.

Isolation wards where a variety of diseases can be treated should preferably be made up of rooms or cubicles, each containing one bed. For some purposes two or even three beds are allowable in the same room.

In every children's hospital of any size there should be an isolation ward composed of single rooms, to which all suspicious cases can be sent for observation, and where even infectious diseases can be treated if they cannot be sent elsewhere. The technique should be rigidly enforced. When you once have such a ward you will realize how indispensable it is.

By adopting this type of construction and strict cleanliness in the nursing care of patients, when a child develops measles, for instance, it is not necessary to close the whole ward. It is only necessary to isolate for observation those patients in the same room who have never had measles. In over twelve years no ward has ever been closed at the Providence City Hospital because of the occurrence of an outbreak of some infectious disease. Patients have been admitted to other rooms in the ward just as if nothing had occurred.

The nursing care as carried out in a contagious hospital is very rigid, but it can be modified for general hospitals for children.

It is not to be expected that cross-infections can be eliminated altogether from children's hospitals, but they can be lessened and the hospitals be conducted so that a whole ward need not be quarantined when a contagious disease appears in one of the rooms. The work can go on as usual after the case is disposed of and the "contacts" put under observation.

The cross-infection rate at the Providence City Hospital, a hospital for contagious diseases only, has been as follows:

1910	2%
1911	2%
1912	6.3%
1913	1.7%
1914	1%
1915	4.6%
1916	1.8%
1917	0.8%
1918	1.9%
1919	0.5%
1920	1.4%
1921	1.9%

During this period the diseases treated are as follows:

Chaneroids	21
Chicken-pox	163
Diphtheria	3,560
Diphtheria with other infectious diseases	131
Diphtheria carrier	254
Erysipelas	112
Gonorrhea, female	45
Gonorrhea, male	125
Gonorrhea, ophthalmial	19
Gonorrhea, other forms	29
Gonorrhea, vaginal	66
Impetigo	29
Influenza	459
Influenza with other infectious diseases	12
Influenza with pneumonia	88
Laryngitis, negative cultures	63
Measles	1,106
Measles with laryngeal diphtheria	41
Measles with other infectious diseases	98
Meningitis, cerebrospinal epidemic	48
Mumps	81
Mumps with other infectious diseases	4
No diagnosis	84
No disease	208
Noma	5
Other diseases	994
Pneumonia, all forms	58
Poliomyelitis, acute	64
Poliomyelitis with other infectious diseases	3
Rubella	148
Rubella with other infectious diseases	6
Scabies	35
Scarlet fever	2,752
Scarlet fever with diphtheria	57

Scarlet fever with other infectious diseases	135
Septic sore throat	14
Syphilis, active and latent	43
Syphilis, cerebrospinal	128
Syphilis, congenital	41
Syphilis, organic	10
Syphilis, other forms	1,855
Tonsillitis	539
Trachoma	12
Tuberculosis, pulmonary	1,906
Tuberculosis, meningitis	28
Tuberculosis, other forms	40
Typhoid fever	9
Typhus fever	4
Variola	31
Vineent's infection	28
Whooping-cough	391
Whooping-cough with other infectious diseases	17
Total	16,199

I venture to suggest, in the absence of exact statistics, that these rates, indicating the percent. of patients contracting a second disease, compare favorably with the cross-infection rates of any hospital or wards used for children suffering from general diseases.

DR. HOWLAND: Dr. Richardson's paper is open for discussion.

MR. STEVENS: I should like to ask Dr. Richardson one or two things. In his three or four-bed convalescent ward, and in his two-bed admitting ward, would he advocate a screen, either permanent or temporary, between the beds, or would he space the beds some distance apart? Would he in the cubicle, or rather the admitting single rooms, advocate the placing of water-closets in the room, or adjoining the room?

DR. RICHARDSON: Relative to the screen, I don't think it matters so much, when you have only two or three beds in a room, if you use those small rooms for admitting new patients. The danger of contact, if the beds are well spaced, say four or five feet apart, is slight, because the patients are too ill to come in contact with each other. The question of convalescence is another question. The question of having water-closets in the room or in a room adjoining the isolation room is purely a matter of expense. In a hospital for contagious diseases, 80% of the patients are under ten years of age, and by using the bed-pans now generally used in hospitals, which can be used on the bed or on the chair, we don't find any great difficulty in having the patients use them, supplying on that floor a certain number of water-closets, toilets, to which adults can go. But when you begin to put a toilet into every room, or even between every two rooms, you are adding not only to original expense, but to the expense of upkeep, and while it is perfectly all right, and a very good idea, it is just a matter of how much money you can spend.

DR. WASHBURN: Do I understand that Dr. Richardson would be willing to put toilets in patients' rooms under any circumstances?

DR. RICHARDSON: I didn't have in mind that particular question. I suppose it would be perfectly possible. I am told that in European hospitals they have them in the open ward; I think that perhaps this country might not submit to that.

DR. HOWLAND: I think Mr. Stevens had in mind a closet between rooms, so that there would be no direct contact with the room except by a door or curtain. Have you seen such installation in contagious hospitals? A. Yes, a toilet for each individual room.

DR. HERSEY: I should like to ask, if where there is a cubicle installed in the ward, and those wards are used for contagious cases, whether it is necessary to arrange further for a curtain across the end of the cubicles in case contagious cases should develop in the cubicles?

DR. RICHARDSON: The chief difficulty we have with cross-infection is with chicken-pox and measles. These are the only two diseases that we exclude from any of our open wards. It is necessary to exclude measles from the beginning of symptoms until about 48 hours after the beginning of the rash. There is very little danger after three or four days from the beginning of the eruption of chicken-pox. We interpret this rule about admitting infectious diseases rather liberally. We have tuberculosis, syphilis, cerebrospinal meningitis, and a great variety. In other words, we admit any kind of infectious disease. We use the open ward for babies with any disease except chicken-pox and measles.

DR. HERSEY: One more question: how about acute infections, the ordinary cold; in cases of that sort, with the possibility of the infection going through the hospital, would you be any more likely to prevent it by using curtains?

DR. RICHARDSON: I am very much opposed to curtains. Partitions are all right to help control children. There is no danger as far as infection through the air is concerned, unless the beds are very close. If you hang up those things, you rely on them, and won't wash your hands. The important things are to sterilize your instruments; keep the patients apart; insist on nurses and doctors washing their hands every time they pass from one group to another; sterilize dishes and utensils.

DR. BROWN: How do you explain the wide variation of cross-infection in 1912 and other years?

DR. RICHARDSON: That was a year when we were jammed full of measles, and we had more cases than we could take care of. A hospital for contagious diseases can take so many patients

and take care of them properly; when you overcrowd the hospital, you do more damage than good. A hospital superintendent should refuse to take more patients than can be well cared for; it only spreads the epidemic. In an epidemic, all he can do is to take the sickest cases, and only such number as he can take care of comfortably.

DR. HOWLAND: Tomorrow afternoon, when we visit the hospitals, if anyone is interested in the subject of isolation wards, the Boston City Hospital has just built two, one in the South Department and one in the general wards particularly for the reception of children. You will see many interesting and ingenious things there, especially the means for sterilizing, ward apparatus, steam closets, and fumigating closets for sterilizing. It seemed to me very practical and very simple.

If there is no further discussion of Dr. Richardson's paper, we will proceed with the question-box.

QUESTION-BOX.

X-RAY DEPARTMENTS.

Question: What is the most equitable way of managing an x-ray department in a small hospital where it is impossible to employ a physician for that service as full-time paid officer? What is the salary of a roentgenologist? Does he have a technician? and what are the arrangements? What is the best way to compensate doctors for reading x-ray plates?

DR. PETERS: At the Rhode Island Hospital, we have had, until within a few months, a man who gave his full time, on salary, to the work of the hospital. Recently that man has been given permission to devote his afternoon hours to his private work. He gives the hospital four or five hours in the morning to the interpretation of plates as taken by the technician. So far as I know, it has been satisfactory. This man has given his readings promptly, and his presence hasn't been missed in the afternoon, because of the arrangement and the system of having his plates there, and a dictaphone into which he could talk if the stenographer was not there. I think the work has been done satisfactorily. I have no opinion in regard to the work in small hospitals, based on experience, but I do know some small places where they employ men to go at intervals to do all the work, or to interpret the plates taken by a trained technician.

DR. DREW: Our roentgenologist is not on a salary. He receives 80% of the fees from paying patients, but he does not receive any compensation for reading plates for non-paying patients. This man feels at times that he isn't paid enough, because we insist on making only one charge for an x-ray plate of one part: that is, if we take a series of stomach plates, and they don't come out right, and the x-ray man wants to repeat them, we make only one charge, because we feel

that we ought to stand our own failures. I have had a pretty strong feeling that the x-ray man ought to be on a salary, and that there ought not to be any division of fees between the hospital and any expert connected with the hospital.

MISS BARNABY, Henry Heyward Hospital: For the past two years, we have had a Harvard Medical student who gave his time entirely to x-ray work. In the winter he came Saturdays and Sundays. One of our nurses was trained under him and under Dr. Jennings of Fitchburg, consulting roentgenologist. Then Dr. Jennings came to the hospital once or twice a week and read the plates, which are then typewritten and sent out to the doctors who send in the patients. Now the student has graduated, and we are having a regularly trained technician come in permanently, while the former student is going to give us one day a week. He has settled in Boston.

Q. Do you pay the consultant?

MISS BARNABY: He has been paid on a 50% basis.

DR. BROWN, Burlington, Vermont: Our x-ray department is highly developed for a small hospital. We pay our x-ray man 75% of all money collected for x-ray plates, and he pays his own technician. He does our laboratory work, blood work, and urine tests. The free x-ray work he does for nothing. The department has grown so, and has come to be so necessary a part of the hospital, that I think his income last year was over \$10,000; that is, for his share of the receipts. The department has grown very rapidly. It is a very necessary part of a modern hospital, and some of it, I think, might be developed in almost every hospital. Out of that money, we have paid for all of our apparatus in recent years, with some little money to the good. The department is practically self-supporting. That doesn't include overhead expenses, or bookkeeping, but it includes the cost of supplies, apparatus, and what services are required. The x-ray man, as I have already said, pays his own technician. So, on the whole, on that basis, it has been a very good thing for us, as well as a good thing for the public and for the x-ray man, who has found it worth while to devote his entire time to it. That includes all routine laboratory work.

WOMAN: Our x-ray department has been self-supporting. We have a man who does our x-ray work, and he has 40% of all charges collected by the hospital, and 25% for each extra plate. He does the fluoroscope work. The doctor who interprets the plates makes no charge.

LABORATORY CHARGES.

Question: Should pay patients be charged for blood counts and for examination of urine?

Should there be a flat laboratory charge for all patients who pay? What should the laboratory charge be, and for what?

DR. STETSON: We have recently taken this matter up. It was first taken up by the staff, and the staff held that there was no reason why a laboratory fee should not be charged, the same as a fee for the operating-room and a maternity fee, and, after considerable discussion, it was finally recommended to the trustees that a flat rate of \$5.00 be charged all patients who have any laboratory work done, with this exception, that an initial complete urinary examination and an initial white count on admission, for purposes of diagnosis, should not be charged for; that that should be done as a matter of routine. For any examination of urine, blood, stomach contents, and other laboratory work, including all laboratory service, a \$5.00 fee was recommended, and the trustees have accepted that recommendation.

Q. Does that apply to ward patients?

DR. STETSON: To everybody. The laboratory worker doesn't know who is on a free bed. If it is a free bed patient, it is charged off.

DR. HOWLAND: I think it is desirable, if there is to be a laboratory charge, that it should not be strung out into various items. Patients are irritated by a bill with many items in it. It is much more satisfactory, if you are going to have a laboratory charge, to make it an inclusive one, regardless of what you do, much or little.

DR. STETSON: All the staff, with one exception, were entirely agreed as to the charge. The feeling was that if a fee was charged for each separate service, patients might many times be deprived of necessary or desirable laboratory examinations, because the physician would feel that he did not want to run up the expense, and that better results would be obtained, and the physicians would be encouraged to use the laboratory, if a flat rate were made; and it has worked out in just that way.

DR. PETERS: Mr. Chairman, it would be interesting if those here who do make charges for laboratory work would indicate it by rising.

Response showed: Open ward patients charged, 10 hospitals; private ward patients charged, 21 hospitals; no charge for laboratory work, 20 hospitals.

ACCIDENT CASES.

Question: What can be done to collect from insurance companies on accident cases? Insurance companies sometimes pay the family, and the hospital doesn't get anything.

DR. HOWLAND: I assume that that question comes from outside Massachusetts, because here we have the Workmen's Compensation Act.

DR. SMITH: We have an industrial accident law that protects the physician and the hospital. Our Industrial Accident Commission sees that the hospital is paid and that the individual doctor is paid, even if the patient is in the hospital. We have no business relations with the insurance company.

(Woman from Waltham Hospital explains that the question refers to automobile accident cases).

MR. BORDEN: In automobile cases, where the insurance company pays the damages, the hospitals have no claim whatever against the insurance company. The insurance company assumes liability and pays damage to the person who is injured. The amount is supposed to be sufficient to include the cost of medical and hospital treatment. Fundamentally, the person to whom the hospital should look for payment is the person to whom damages are paid as the result of the accident.

WOMAN: I have been in a hospital where there were a great many automobile accident cases—six, eight, or ten such cases in the hospital at one time. We asked if there was insurance. We found the companies were very willing to see that the hospital was compensated. We never had any difficulty if the patient was insured. We never lost any money on an insurance accident case.

WOMAN: We sometimes have just such accident cases, when we are urged by the insurance company to do everything possible to save the patient's life. Then later they sometimes say that they are not liable, and the hospital has difficulty in collecting from the patient. In one special case, there was a small child who was insured. The family questioned the amount of the expense, and in that case, of course, the expense was going on before it was decided who should pay it.

DR. HOWLAND: I think Mr. Borden, who is a lawyer, very clearly covered this question, speaking from a legal point of view. We have no claim on the insurance company. The insurance company is responsible to the injured person. If there is anything to be collected by the hospital, it is from the patient. The insurance company will work with us sometimes, but we have no claim on them.

REFRIGERATING PLANTS.

Question: Who has a refrigerating plant he will recommend for a hospital of 125 beds? What is the cost of installation? and what is the expense of upkeep? Is it difficult to run? or can it be taken care of by the engineer, in addition to his other duties?

DR. HOWLAND: Miss Barnaby, you have a hospital of about 125 beds; do you have a refrigerating plant?

MISS BARNABY: Our hospital has really only 100 beds. I don't know whether our plant is large enough for a hospital of that size or not. I can't tell the cost of the installation, because it was included in the new building. Our engineer with his assistant does take care of it. We have had it running about two months. It is called the Johns-Manville machine. It is supposed to be a self-contained machine, with nothing to do but keep the motor running.

Another speaker (man) says the apparatus costs about \$7,000.

DR. RICHARDSON: We have just installed one at the City Hospital. It is too early to know whether it is going to be satisfactory or not. Most all of the wholesale beef houses and all the business men who are using refrigerating plants swear by this concern. For space we have one room about 12 by 13 feet; we have four other compartments, which all together contain about 12 by 20 feet, divided up into sections; and then we have a freezing compartment that will freeze about 1500 pounds of ice a day, and a morgue box which will accommodate three bodies. The cost of installation was \$9,000. The cost of upkeep is not yet known, probably not over \$40 or \$50 a month. Our engineer looks after it.

MR. STEVENS: I have put in a number of refrigerating plants,—200 put in by the Eric Company. One thing I try to avoid in putting in refrigerating systems in a hospital is the use of ammonia, by using other things. I have had very good success with sulpho-dioxide in refrigerating systems in self-contained systems. I use ammonia where the plant is large enough to be entirely outside of the building.

DR. RICHARDSON: We considered that matter of using ammonia. A number of people said they had had no trouble, and other people said they had had trouble. The supply pipe of liquid ammonia has a pressure of 150 pounds; we run that out of doors. The return pipe has a pressure of something like 25 or 30 pounds; that would be a slight leak, if any. The other is out of doors, so the danger is not great.

DR. FAXON: At the Phillips House, we have a Johns-Manville installation. It has been very satisfactory. It needs very little care, apparently, from the engineer. It produces perfectly satisfactory refrigeration. We also have a machine of a similar type which was put in to take care of refrigerating the ice-box in the kitchen for the General Hospital, which has also been very satisfactory.

One word of caution that I would like to suggest is, in the installation of such things in a modern fire-proof building construction, put your ice machine outside of the general frame of your main building. If you put it in the basement of the building, it will cause a little vibration to be carried up through the steel beams for

several floors. That can be avoided if you know about it.

I don't know the cost of installation.

VACATIONS.

Question: How long a vacation does the superintendent allow staff nurses? social service workers? If a nurse is to leave at the end of the year, would the hospital be expected to pay her for a vacation?

MISS SELBY, Pawtucket: We give the staff nurses one month's vacation, and I should feel that if a nurse had put in a year's work, she was entitled to her month of pay, even if she were not coming back. Our social service worker has a month.

MR. BORDEN: I quite agree that a month is a fair time for either a nurse or a social service worker, because I think the work is very engrossing, and it is in the interests of the hospital to give them that vacation. But I don't understand why a nurse who is going to leave the hospital should be paid for that month's vacation. Most people don't get a month, and the only reason why a hospital gives that length of time is that the nurse should be thoroughly recuperated. I should hesitate to give that vacation, if a nurse told me she was going to leave.

DR. HOWLAND: I think sometimes a great deal of agony is saved if you make the vacation four weeks, instead of a month; it saves quite a lot of trouble and wearing out of the calendar.

SALARIES.

Question: What salary is paid a graduate nurse in charge of the operating-room?

MISS HALL, Peter Bent Brigham Hospital: We pay \$100 a month to the supervisor of the operating-room at the Peter Bent Brigham. We have been paying that for several years. A survey made of 1115 hospitals, two or three years ago, brought out the fact that representative hospitals were paying \$100 to \$125 for operating-room supervisors. That was in hospitals of from 200 to 300 or 350 beds.

DR. HOWLAND: What do some of the smaller hospitals pay the nurse in charge of the operating room?

MR. BORDEN: Our operating-room nurse, who has three rooms, gets \$125 a month and maintenance. The nurse who has charge of the operating department of two rooms gets \$90. We expect to raise it to \$100. Our hospital doubled its capacity last year.

MISS WEST, Beverly: We pay our operating-room nurse \$85. It will be increased.

MISS BOOKER, Corey Hill Hospital: We have two nurses in operating-room. The senior has \$85; the other \$80.

RAW FOOD AND PER CAPITA COSTS.

Question: For a basis of comparison, What are the per capita costs for raw food in various hospitals? What are the total per capita costs in various hospitals for care of patients?

MR. BORDEN: At the Fall River Union Hospital, the cost per capita for uncooked food per day was \$0.36, and \$3.73 a day per capita for care of patients.

DR. FAXON: The food cost at the Massachusetts General is \$0.44 a day, and care of patients \$5.08 per day,—that is, for the General Hospital.

MISS BARNABY: With a daily average of 40 patients, the uncooked food costs \$0.50 per day per capita, and the cost for the care of patients is \$5.75 per day. We employ graduate nurses only, with attendants.

MISS SELBY: Our per capita cost for uncooked food is \$0.595 a day; the daily average cost of the patients is \$4.95.

INTERNES.

Question: How many internes, if any, should a hospital of from 50 to 75 beds have? If more than one, should their work be divided? Regarding payment of internes, do any of the hospitals represented here give an allowance to internes? If so, how much?

MISS WEST: We have averaged 50 patients, and have had one interne. He took care of the ward patients. We paid him \$50 a month. This year we are to have two internes, neither of whom will receive any salary. Their working arrangement has not yet been decided. They serve for twelve months. This year we expect to have more patients.

DR. BROWN: The American College of Surgeons allows one interne for each twenty-five patients. We give our internes \$50 when they leave, to pay their car fare out of town.

DR. RICHARDSON: Our internes have \$25 a month for the first three months; the second three months we pay \$50. They come for six months' service.

MRS. SHEPARD, Mary Hitchcock Hospital: We have a hospital of 70 beds. When we can get them—we haven't been able to for the last two or three years—we have two graduates. They act as junior and senior, junior the first six months, and senior the last three months. We have a pretty active operating-room service, three or four a day; in the last six months they assist at the operations. We do not pay them.

Meeting adjourned at 4:30 p. m.

(Dr. Richardson's Tables.)

PROVIDENCE CITY HOSPITAL.

Cross-Infection Rate.

1910.....	2 %
1911.....	2 %
1912.....	.63 %
1913.....	.17 %
1914.....	1 %
1915.....	4.6%
1916.....	1.8%
1917.....	.8%
1918.....	1.9%
1919.....	.5%
1920.....	1.4%

DISEASES TREATED FROM 1910-1920.

Chicken-pox	140
Diphtheria	3481
Erysipelas	100
Gonorrhea	210
Influenza	557
Measles	1132
Meningitis	68
Mumps	66
Nurses, taken sick while attending patients	185
Other diseases	3270
Pneumonia	44
Poliomyelitis	87
Rubella	151
Scarlet fever	2744
Tonsillitis	482
Tuberculosis, children	31
Typhoid fever	9
Typhus fever	4
Variola	32
Whooping cough	383
Total	13,176

(To be continued.)

Original Articles.

A SPECIFIC SORE THROAT WHICH PASSED AS AN ORDINARY PHARYNGITIS AND TONSILLITIS, TREATMENT ADMINISTERED FOR SAME, WITH NO RELIEF.

BY DAVID B. MEDALIA, M.D., BOSTON.

It is my desire to publish this interesting case, to bring out the importance of a Wassermann in obstinate sore throats which do not clear up under ordinary treatments, especially persisting for a long time.

This patient, a man of forty-five, applied for examination and treatment of a very sore throat. He could not swallow except with great difficulty, whether warm or cold fluids; it pained him even to talk. History: Denies

specific disease, has been suffering from a throat condition for last few months. He was in Newport, Rhode Island, previous to his moving to Boston, where he went to a local physician, who examined him, told him he had a very bad throat, and gave him a gargle and a tonic, and told him to come back later for a urine examination. The patient did as he was instructed, for a couple of weeks. His condition became worse instead of better. He then left for Boston, and saw me the latter part of last April.

Physical examination was negative except for a few boils on his forearms, pyorrhea alveolaris and an ulcerated throat. There appeared to be a mucopurulent-like membrane covering the back wall of the pharynx, downward and upward, including the soft palate, extending to and overlapping both tonsils. The uvula seemed to be severed in two, the result of the existing ulceration. It looked to me to be one of four conditions, namely, diphtheritic, specific, tubercular, or malignant.

I made smears and cultures to rule out diphtheria, in which I succeeded: those showed no K. L., predominating micrococci catarrhalis, streptococci and staphylococci.

At the same time I took a blood for a Wassermann, which was reported positive.

To the physician it had looked like a tertiary gumma, ruling out tubercular because of its wide distribution with hardly any destruction; and excluding the question of malignancy because of the fact that the patient could freely open his mouth widely with the least bit of pain or disturbance. Dr. Morton Smith advised the administration of antispasmodic treatment at once.

I started the patient off with Gr. V of K. I., gradually increasing it to Gr. XV t. i. d. and mercury inunctions. The improvement of the throat was miraculous, even before the administration of arsphenamine.

A week later I started him off with 0.2 mg. of arsphenamine intravenously, increasing the dose to 0.4 mg., which he is receiving every week, at the same time keeping up with the mixed treatment. Later I intend to give him 0.6 mg. of arsphenamine for a few weeks to complete the twelve injections before another blood test.

After an administration of four doses of arsphenamine his throat has cleared up entirely, and he has hardly any discomfort or pain left.

CONCLUSIONS:

One must always guard against specific sore throats, though the patient gives a negative blood history.

It is important to take a blood test in cases of persisting sore throats accompanied by ulcerations, and which do not clear up under ordinary treatments.

587 Beacon Street.

A CASE OF INTUSSUSCEPTION.

BY PHILIP J. FINNEGAN, M.D., SALEM, MASS.

THE report of this case of intussusception may be of interest on account of the age of the patient and on account of the location of the condition. This girl, 6 years and 7 months of age, was taken sick with a "belly-ache" and cried on Friday morning, the 20th of January, but was sent to school. She seemed to be all right from then until the following night, when she had severe cramps with vomiting, which apparently was faecal, for her mother said it was "stinking." She continued to have these severe cramps and the vomiting until she came to the Victoria Hospital on the evening of the 24th. At that time, she had a temperature of 95.6, pulse of 130, and respirations of 25. From Friday morning she had no bowel movement and passed no blood or mucus; an enema, given shortly after entrance, brought some bloody mucus. Patient was thin and poorly nourished; skin and mucous membranes showed marked pallor; eyes had an anxious expression; tongue was dry and slightly furred with a brownish coat; patient was very restless and in great pain. She was vomiting constantly brownish liquid with a faecal odor, as she had been for three days. Examination of the abdomen showed a long tender mass in the middle of the right side of the abdomen beyond the rectus muscle. This mass appeared to be 8-10 inches long and 3-4 inches wide. Blood pressure: sys., 86; dias., 58.

Operation.—On opening the abdomen by a median incision, there escaped much thin blood-tinged fluid. On the right, a large mass was felt and found to be small intestine greatly adherent and massed together; much fibrin was scattered over the bowels and some bloody fluid was present in the pockets formed by the adherent gut. The caecum was freely movable with a small appendix and was not involved in the condition; the mass was at least eight inches from the ileocaecal valve and extended along the ileum for about twelve inches. The distal end of the mass was thick and indurated. The intussusceptum could not be reduced by manipulation and the gut was opened longitudinally and 10-12 inches of bowel the color of chocolate jelly was delivered and resected. A small necrotic sessile tumor, two inches long with a pedicle $\frac{1}{4}$ inch in diameter, and the blunt distal end one inch in diameter, was found in this necrotic gut at the apex of the intussusceptum. A lateral anastomosis was done and one drain placed in the pelvis and another higher up, but avoiding the anastomosis sutures. During the operation, the skin remained warm and her color and respirations were good, with the pulse running between 160 and 170. No stimulants were given; the patient was then put in Fowler's position with Murphy drip.

Following an enema on the next morning, some flatus was passed, and 36 hours after operation some fluid faeces were passed. From the third day on there were always 4 or 5 involuntary fluid movements, and on the sixth day after operation, there was a formed stool. During this time and for nearly three weeks there was marked distention, which was but little relieved by enemata. There was little if any discharge from the drainage wounds after the removal of the wicks on the fifth day: drains were not replaced. The distention caused the skin edges to gape, but they were pulled together by adhesive plaster. The distention gradually went down, the wound healed, and the girl went home in 5 weeks. For three weeks she had been on house diet and was comfortable except for the distention.

On June the first she is doing well and going to school every day: she eats well, sleeps well, and has had no abdominal discomfort since leaving the hospital.

A TWO-HEADED CALF.

BY EDWARD B. BENEDICT, A.B., BOSTON.

Harvard Medical School.

A TWO-HEADED calf was recently born at the Bothfeld farm in Sherborn, Mass. This calf had a single trunk, and only four legs, but its two spines, though gradually converging, remained separate all the way down and ended in two distinct tails. The two necks converged and joined externally at about the mid-cervical region.

This calf was the fourth offspring of a large pure-bred Holstein cow and bull; the other three calves had been normal. Ordinarily, a calf is born with forelegs first, then head, and finally the rest of the body. In this case delivery was in the following order: right foreleg, right head, left foreleg, left head, then body and hind legs. The delivery was considered a difficult one, as it took three hours, but, curiously enough, it was the delivery of the normal hind quarters that caused the most trouble. The calf did not live, and probably never even breathed, though during delivery of the hind quarters she worked both her tongues around in the manner common to a calf as soon as its head is born.

Examination of the back of the animal showed three separate longitudinal ridges. The lateral ones were due to the spinous processes of the two vertebral columns, and as these processes flared laterally in the thoracic region, there was produced a central trough. This trough was bisected by the median ridge, high in the thoracic region, low in the lumbar area, but traceable to the fused sacra. To make this middle ridge, pairs of short ribs from opposite sides united in the mid-line and sent an undivided process dorsally, thus forming a suc-

cession of spurious arches and spinous processes.

The lateral fore limbs were normal, but the median pair was represented by a broad cartilaginous plate evidently derived from a fusion of two scapulae. This was packed in between the two spines. Deep within the muscles at the root of the neck, and thus at the upper end of the thoracic cavity, there was a spherical cyst, 25 mm. in diameter, thickly lined with white hair. The double scapula and the dermoid cyst were the only indications observed of the median pair of fore limbs.

Internal examination revealed a complete or partial doubling of the respiratory, cardiovascular, and gastrointestinal systems.

The Respiratory System: Two entirely separate systems existed in the single thoracic cavity. A trachea led from each neck down to a pair of lungs on each side. The medial lungs were distinctly smaller than the lateral, and none of the four appeared ever to have been filled with air. This was probably due to the very imperfect development of the diaphragm. In place of a strong tendinous center, it presented two weak membranous layers enclosing between them a very large diaphragmatic hernia.

The Cardiovascular System: There were two hearts of equal size; and cephalad there were two distinct sets of blood-vessels. The arteries appeared to be normal except that the left subclavian of the right animal was suppressed, and the right subclavian of the left animal was abnormally small, save for a branch distributed to the median thoracic region. There were no limbs for these median subclavian vessels to supply. The arches of the two aortae came together in a single descending trunk above the level of the diaphragm.

The Gastrointestinal System: The abdomen of the calf normally is largely filled with the four subdivisions of the stomach. In this instance it was overcrowded with them, for there were seven, owing to the complete doubling of all but the abomasum. That is, the cleavage into two individuals had extended through the rumen, reticulum and psalterium, making two of each, and ended in the fourth stomach, or abomasum, which was only partly subdivided. The oesophagus and first three stomachs on either side were apparently normal, except that the rumen, or paunch, of the right side was in the diaphragmatic hernia. The stomachs of the two sides ended in an abomasum, which was one large lobulated sac, divided superiorly by a median septum. But this septum terminated below, so that there was only a single pylorus. The duodenum and all the intestinal tubes were single and normal, ending in a distended rectum containing abundant hair-filled meconium. The anus was perforate. The urogenital system was unaffected by the cleavage. Since the duodenum was single, those organs which develop from it,

the pancreas and liver, would, naturally, be single; and such was the case. But the liver, with its single gall-bladder, assumed a bilateral disposition across the body, receiving two umbilical veins, and emptying into right and left venae cavae inferiores, passing to the respective hearts. Although there were two stomachs, I

found only one spleen, which was on the left side.

In making this dissection I was assisted by Dr. F. T. Lewis, who expects to publish a note on the embryological significance of the conditions here described.



Unusual Relation of Styloid Processes.

UNUSUAL RELATION OF STYLOID PROCESSES OF RADIUS AND ULNA.

BY G. T. TYLER, JR., F.A.C.S., GREENVILLE, S. C.

During the examination of a patient, I noted that the styloid process of the left radius was about the same level as that of the ulna. Although there was no other abnormality of the fore-arm, I immediately asked the patient when she had broken her arm. When she replied that she had never received an injury, I examined the other arm and noted the same condition. The accompanying x-ray, taken with the hands in pronation, shows the interesting variation. The tip of the left radius lies a little above the plane of that of the ulna. The styloid process of the right is in the same plane as that of the right ulna.

I can give no explanation for this variation; nor have I seen a report of a similar case.

NOTE.

An unsigned criticism of an advertisement in the JOURNAL has been received. We are always appreciative of constructive criticism, but the general policy of editorial offices is to ignore unsigned communications. A written opinion only carries weight when the author is known.



Usual Relation of Styloid Processes.

Book Reviews.

X-Ray Dosage. By WILLIAM D. WITHERBEE, M. D., Radiotherapist Presbyterian Hospital, New York, and JOHN REMER, M.D., Radiotherapist, New York Hospital, New York. 87 pp. Illustrations 5. The MacMillan Company, New York.

This small monograph is a collection of the previously published papers of the authors.

The first thirty-six pages, about one-half of the book, are devoted to a discussion of the so-called "indirect method" of measuring x-ray dosage and of the formula devised by the authors. No mention is made of the various other methods of measuring dosage. The formula recommended is based on the four fundamental factors—the voltage, milli-ampere, time and distance. The size of the area exposed is not considered.

The technique described by the authors has proved satisfactory in the treatment of superficial lesions where unfiltered radiation was used. When using filtered radiation, it is doubtful if their thesis is correct and it has not been generally adopted.

The latter half of the book describes the method of applying and the dose to be given in infections of the throat, diseases of the skin, uterine fibroids, menorrhagia and Hodgkin's disease. There is also a chapter on the cause and treatment of radio-dermatitis.

The treatment of the various subjects is necessarily brief and somewhat incomplete in a book of this size.

Studies from the Rockefeller Institute for Medical Research. Reprints, Vol. xlii. 1922.

Cowdry makes a plea for conservatism in invention of new terms.

Clark illustrates a device for the measurement of intravenous temperatures.

Stadie illustrates an oxygen chamber for the treatment of pneumonia, and reports a case in which the anoxemia was notably relieved.

Clinical and Operative Gynaecology. By J. M. MUNRO KERR, Professor of Obstetrics and Gynaecology, Glasgow University (Muirhead Chair); Gynaecological Surgeon, Royal Infirmary, Glasgow; Honorary Fellow American Gynaecological Society, etc. London: Henry Frowde and Hodder & Stoughton, the Lancet Building, 1 and 2 Bedford Street, Strand, W. C. 2. 1922.

The author explains in his preface that it has seemed advisable to keep the clinical and operative sections separate. This is a rather

distinct departure from most books of this type, but, because of the excellent drawings furnished by the author and the small descriptive paragraphs accompanying each plate, it would seem that this method has a distinct advantage. One is able to refer to the latter part of the book and find practically all operations briefly described by text and by the excellent outline drawings.

The pathology presented in the book is simply a working pathology suited to the requirements of those interested in the clinical side of gynaecology.

In the operative section, two chapters are devoted to general surgical details and technique. This possibly is unnecessary, as it has been the custom to incorporate such details in practically all surgical books for many years.

There are 31 chapters, most of them short and concise. There are 132 illustrations independent of the outline drawings of operative technique, and a few excellent colored plates. There is one particularly valuable chapter on "Nervous Disorders in Relation to Abdominal and Pelvic Diseases," by Ivy MacKenzie. The volume also contains five pages of outline drawings illustrating various pathological conditions in the pelvis. Such drawings as these we have not yet seen in any of the American textbooks; they are very simple and yet extremely adequate in illustrating the pathological condition which it is wished to describe. For instance, the drawing of an appendix situated in the anterior fornix is a most excellent drawing of an extremely rare condition. Another chapter of note is that on "Disorders of Function."

The book forms a valuable handbook for the busy practitioner or the hospital interne, and might well be used by the medical student.

As a combination of clinical and operative gynaecology the book has decided merit.

Mental Diseases: A Public Health Problem. By JAMES V. MAY, M.D., Superintendent, Boston State Hospital; Chairman Committee on Statistics, American Psychiatric Association; formerly member New York State Hospital Commission, etc. With a Preface by Thomas W. Salmon, M.D., Professor of Psychiatry, Columbia University, New York. 536 pages. Boston: Richard G. Badger. 1922.

This volume is in one respect unique among works on mental diseases, presenting, as it does, as a distinguishing feature, the statistical aspect of the subject. Under this head the author has brought together an array of heretofore scattered facts and figures, which, although they are in the main familiar to the psychiatrist, should impress thinking people generally and be especially helpful in the education of a public at last awakening to an adequate realization

of mental disease both as a far-reaching malady and a social and economic burden.

The parent, physician, clergyman, educator and sociologist alike can find here an ample supply of statistical data to fortify their views on the subject of the mental health of the community and the pitfalls that threaten it. In this connection it perhaps would have been well if something more than indirect reference had been made to the question whether or not mental disease is increasing, a point on which there is very general interest and, in spite of enlightening research, much popular misinformation.

Among General Considerations are the mental hygiene movement, immigration and mental disease, and endocrinology and psychiatry—subjects which do not often find prominent places in books on psychiatry. The psychiatry of the war is also given a brief but satisfactory résumé.

The latter half of the work is devoted to descriptions of the individual psychoses. The author has admittedly confined himself to reflecting the views of others, throughout the book using actual quotations from recognized authorities. Nevertheless the compilation of these chapters is so thorough, embracing, as it does, the development of each disease form according to the conceptions of different observers, as to make them especially valuable for reference purposes.

A Text-Book on Gonorrhoea and Its Complications. By DR. GEORGES LUYIS. Translated and Edited by ARTHUR FOERSTER. 3rd Revised Edition. William Wood & Co. 400 pages. 212 Illustrations and 5 Colored Plates. Price \$6.50.

This book is one of the most fascinating treatises on gonorrhoea which the reviewer has seen. Its outstanding feature is the thoroughness with which the author goes into the various aspects of this disease. The history and pathology of this infection are unusually good. Luyis is an advocate of urethroscopy, a procedure which he apparently employs a great deal more than do most urologists in this country. He gives numerous illustrations, both in black and white and in colors, of the conditions which he has found. One feels that he is a past master of all the more delicate and expert intraurethral manipulations; he has something to say, either pro or con, in regard to the more unusual methods of treatment, such as the application of heat, ionization, and electrolysis.

The question might be raised as to the wisdom of so much manipulation as Luyis advocates. He states that the incidence of epididymitis is 25 per cent., a figure which seems to us to be shockingly high. It may be that this high percentage is caused by too extensive intraurethral treatment.

Luyis' style is interesting, and is made more so

by the numerous résumés of cases, recited, with many a Gallic touch, as a bit of intimate gossip. His translator seems to have preserved this characteristic of the book very well, and except for a few passages in which he has been careless about his English, has done an excellent piece of work.

It would be beneficial to many American urologists to read this book.

The Psychic Health of Jesus. By WALTER E. BUNDY, Ph.D. Pp. 299. New York: The Macmillan Co. 1922.

This volume can be discussed from two aspects, the theological and the psychopathological and psychiatric, but only the latter will be touched upon here. According to the author, the latter fields are entered into only so far as the contentions against Jesus' psychic health have forced the problem, and then only in its relation to the New Testament sources.

The book discusses in detail, the various psychiatric and pathographic accounts of the personality of Jesus, as to whether or not he was an ecstatic, an epileptic, a paranoiac or a neurotic. Such a discussion may be of value, but when any great leader in the world's history of thought or action is submitted to a psychiatric analysis, there can nearly always be found personality traits which can be easily labelled with a scientific terminology. Such labelling, however, can neither adequately express the greatness of the man nor detract one iota from his contribution to human thought, for all great men have something within them which deviates from the normal, and it is probably this very deviation which renders them great and makes them impatient and intolerant of the religious, scientific, social or literary trends of the age in which they lived. All great men possess to a higher degree than their ordinary fellow men, a creative imagination which manifests itself in that symbolic thinking which illuminates the reality of things in genuine truth and inspiration, so that their contributions become the common heritage of mankind.

It would seem that this attitude is in agreement with Dr. Bundy's summing up of the situation, for he states that the pathographers of Jesus "have toyed wantonly and wilfully with the figure in history to which are attached the sincerest sentiments and the dearest affections of the occidental religious world, and without sufficient reason or justification."

The book contains a few errors of psychiatric terminology, such as the use of the word "hallucinations" instead of "delusions," while the translation of the French word "*delire*" is rendered "delirium." According to the bibliography, the author has overlooked Berguer's contribution to the life and personality of Jesus from the psychoanalytic standpoint published in 1920.

Miscellany.**OFFICIAL BULLETIN OF THE AMERICAN COLLEGE OF SURGEONS.**

Boston, October 23.—Hospital service to the public in Massachusetts has shown a marked advance in the past year, according to the fourth annual report of the American College of Surgeons, released here today. This report is based on a survey which includes personal visits to each hospital of fifty beds or over in the United States and Canada. The attached list of hospitals was given a place on the "approved" list.

The asterisk indicates hospitals which have instituted measures which insure scientific medical care to their patients, but which have not realized them to the fullest extent to date.

"The institutions listed proved that they are giving the best of scientific care to their patients," declared Dr. Franklin H. Martin, Director-General of the American College of Surgeons. "Aided by one of the great educational foundations, we have carried on actual visits to hospitals, made by trained medical men who see working conditions as they are. For the first time this year we have surveyed hospitals of 50-bed capacity and up. These institutions, as well as the larger hospitals, show a marked improvement the country over and place Massachusetts in the fore-front of States which are active in medical progress. Massachusetts is to be congratulated on its splendid showing and on the medical men, hospital superintendents, and trustees who have made this advance possible."

Beth Israel Hospital, Boston.
Beverly Hospital, Beverly.
Boston City Hospital, Boston.
Boston Lying-in Hospital, Boston.
Brookton Hospital, Brookton.
*Burbank Hospital, Fitchburg.
Cambridge City Hospital, Cambridge.
Cambridge Hospital, Cambridge.
Carney Hospital, Boston.
Children's Hospital, Boston.
City Hospital, Fall River.
Clinton Hospital, Clinton.
*Cooley-Dickinson Hospital, Northampton.
Farren Memorial Hospital, Montague City.
*Faulkner Hospital, Boston.
Free Hospital for Women, Boston.
*Hart Private Hospital, Brookline.
Holyoke City Hospital, Holyoke.
House of Mercy Hospital, Pittsfield.
House of the Good Samaritan Hospital, Boston.
Infants' Hospital, Boston.
Lawrence General Hospital, Lawrence.
Long Island Hospital, Boston.
Lowell Corporation Hospital, Lowell.
Lowell General Hospital, Lowell.
Lynn Hospital, Lynn.

*Malden Hospital, Malden.
Massachusetts Charitable Eye and Ear Infirmary, Boston.
Massachusetts General Hospital, Boston.
Massachusetts Homeopathic Hospital, Boston.
Memorial Hospital, Worcester.
Merey Hospital, Springfield.
New England Hospital for Women and Children, Boston.
Newton Hospital, Newton Lower Falls.
*Noble Hospital, Westfield.
North Adams Hospital, North Adams.
Peter Bent Brigham Hospital, Boston.
Providence Hospital, Holyoke.
*Quincy City Hospital, Quincy.
St. Elizabeth's Hospital, Boston.
St. John's Hospital, Lowell.
*St. Luke's Hospital, New Bedford.
St. Vincent's Hospital, Worcester.
Salem Hospital, Salem.
Springfield Hospital, Springfield.
Truesdale Hospital, Fall River.
Union Hospital, Fall River.
*Waltham Hospital, Waltham.
*Wesson Memorial Hospital, Springfield.
Worcester City Hospital, Worcester.

AMERICAN RELIEF ADMINISTRATION.

Moscow, September — Can an anti-typhus serum be discovered in time to check what promises to be one of the worst epidemics of this disease to which Russia has ever been subjected?

In the laboratory of Sakalineschky Epidemic Hospital here Dr. N. Kritch, a woman physician, and Dr. V. Barikan, director of the Moscow Micrological Institute, are working unremittingly in the hope that they can develop the required anti-bodies to combat the Microbion Typhi Exanthematici which they discovered last spring after six years' work on the etiology of typhus, before winter increases the already high incidence of the disease. Upon the success of their efforts may depend the lives of hundreds of thousands, if not millions, of typhus victims within the coming six months.

For the typhus is not only disseminated throughout Russia to an extent hitherto unknown, but the typhus curve, which usually falls in summer until deaths from the disease are of rare occurrence, and rises in the winter, when lack of bathing facilities and the use of added clothing tends to increase the vermin infestation, has not pursued its usual course. Instead of falling during the summer months it has remained practically level. Last winter the incidence of the disease was abnormally high even for Russia. This summer it has remained high, indicating, in the opinion of both Russian and American physicians who have studied the situation, that the epidemic this winter will be even more severe than that of last year.

In order that they may pursue their researches the American Relief Administration has provided the laboratory where their experiments are being carried on with all the necessary supplies for their work, and in addition has given food packages to the experimenters.

AMERICAN SYNTHETICS.

The Fordney-McCumber Tariff Bill, recently passed by Congress, unfortunately does not provide sufficient protection for American-made medicinal chemicals, nor does it compensate for the extensive research work which has been done by American chemists.

The rates on medicinal chemicals were passed over the protest of the medical profession. It is now possible for the physicians to follow up their protests by using only American-made synthetics, and referring to them at all times by their American names, as suggested by the Council on Pharmacy and Chemistry of the American Medical Association.

Among the important American-made medicinal which should receive the support of all American physicians, are Arsphenamine, Barbitol, Cinchophen and Procaine.

RÉSUMÉ OF COMMUNICABLE DISEASES.

SEPTEMBER, 1922.

General Prevalence.—There was a general increase in the more prevalent communicable diseases for the month. Diseases showing an increase for the month are anterior poliomyelitis, diphtheria, ophthalmia neonatorum, scarlet fever, typhoid fever and whooping cough. Anterior poliomyelitis was reported in 63 cases, against 55 for last month, and 54 for September, 1921. Diphtheria was reported in 578 cases for the month, 481 for August, 1922, and 525 for September, 1921. Ophthalmia neonatorum was reported in 109 cases, against 100 for the previous month. There were 149 cases reported in September, 1921. Scarlet fever was reported in 281 cases, against 208 for the previous month, and 279 for September, 1921. Typhoid fever was reported in 131 cases, against 101 for the previous month, and 124 for September, 1921. Whooping cough was reported in 637 cases, against 483 for the previous month, and 247 for September, 1921.

Chicken-pox was reported in 53 cases, against 60 for the previous month, 61 for September, 1921.

Measles.—During the month 269 cases were reported, against 338 for the previous month, 201 for September, 1921.

Pneumonia, Lobar.—There were 86 cases reported for the month, against 91 for August and 126 for September, 1921.

Tuberculosis, Pulmonary, was reported in 457 cases for the month, against 547 for the previous month, and 512 for September, 1921.

Gonorrhea was reported in 493 cases and *syphilis* in 179 cases.

RARE DISEASES.

Anterior poliomyelitis was reported from Abington, 1; Attleboro, 3; Belmont, 1; Boston, 15; Brockton, 1; Brookline, 1; Cambridge, 2; Clinton, 1; Danvers, 1; Dennis, 1; Eastham, 1; Fall River, 2; Gloucester, 1; Greenfield, 1; Hanover, 1; Lawrence, 2; Lynn, 1; Lynnfield, 1; Malden, 1; Manchester, 1; Marblehead, 1; Medford, 2; Natick, 3; Needham, 1; New Bedford, 2; Northbridge, 1; Peabody, 1; Quincy, 1; Revere, 1; Somerville, 2; Webster, 2; Wellesley, 1; Westport, 1; W. Springfield, 1; Woburn, 2; Worcester, 1; Wrentham, 1; total, 63.

Dog-bite requiring anti-rabic treatment was reported from Billerica, 1; Boston, 3; Chelmsford, 1; Dartmouth, 1; Fall River, 1; Holyoke, 1; Lowell, 8; Warren, 1; Winthrop, 4; total, 21.

Dysentery was reported from Boston, 1.

Encephalitis lethargica was reported from Arlington, 1; Ayer, 1; Boston, 1; Brockton, 1; Lynn, 1; Melrose, 1; Quincy, 1; Taunton, 1; Watertown, 1; total, 9.

Epidemic cerebrospinal meningitis was reported from Boston, 1; Lancaster, 1; Lawrence, 1; Peabody, 1; total, 4.

Hookworm was reported from Boston, 5.

Leprosy was reported from Cambridge, 1.

Malaria was reported from Boston, 2; Hadley, 2; Lowell, 1; Newburyport, 1; Uxbridge, 2; total, 8.

Pellagra was reported from Boston, 2.

Septic sore throat was reported from Boston, 1; Holyoke, 1; total, 2.

Tetanus was reported from Boston, 2; Brockton, 1; Sandwich, 1; Sterling, 1; total, 5.

Trachoma was reported from Acton, 1; Billerica, 1; Boston, 4; Cambridge, 1; Worcester, 1; total, 8.

Trichinosis was reported from Boston, 1.

CENSORS' MEETING.

The Censors for the several districts will meet for the examination of applicants for fellowship on the first Thursday of November.

The Censors for the Suffolk District will examine applicants residing in that district and also applicants who are non-residents of Massachusetts.

Applicants for fellowship should apply to the Secretary of the District Society of the district in which they reside (have a legal residence) at least one week before the date of a given examination, taking with them their degrees in medicine.

THE BOSTON Medical and Surgical Journal

Established in 1828

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"TIMEO DANAOS ET DONA FERENTES."

Among the various circulars, samples, blotters, and calendars which constitute so large a proportion of every doctor's mail, there recently appeared a 12-page pamphlet entitled "Proprietary Medicines and the Doctor." This treatise was written by Judge Irwin G. Jennings, M.A., Ph.D., who is apparently the Lord High Director of Diplomacy for the Glass Container Association.

Judge Jennings' article is an appeal to the medical profession to co-operate with the proprietary medicine manufacturers. The writer argues that there is no ground for the doctor's hostility towards patent medicines; that the latter no longer contain narcotics or alcohol. He neglects to say that the chief reason they do not contain these, is that the A. M. A. brought about the passage of the Pure Food and Drug Act in order to stop the indiscriminate sale of poisons to the ignorant and the credulous. Proprietary medicines, says Jennings, are more accurately compounded and are cheaper than the same formulae when made up according to a physician's prescription. Their relative cheapness, he continues, enables the poor to have medicine even if they cannot afford a doctor and keeps them from the fakir and the quack. (In our experience these two last named gentlemen have no use for the poor anyway.)

Judge Jennings devotes several pages to figures culled from various reports, to prove that many people cannot afford to pay a doctor. No doctor needs proof of this—his own accounts are evidence enough. Jennings' greatest argument for co-operation is based upon his premise that the practice of legitimate medicine is about to go to the wall through the activities of Osteopaths, Chiropractors, et al. If the doctor will only let the manufacturers of proprietary medicine have a free hand, the latter "can easily keep the American public sold to the curative properties of drugs," and by so doing, will force them back into the arms of Regular Medicine.

This ingenuous attempt to persuade the medical profession to be the publicity agent for the proprietary medicine companies is too weak to stand alone. It falls to pieces as you examine it. In the first place, the function of the doctor is not to sell medicine or to prescribe it. His function is to diagnose disease, and, having done so, to take steps to relieve its symptoms or to eradicate its cause. In the accomplishment of these ends, the administration of medicine plays but a small part. The drugs which are of value are few in number and are best given in their simplest and least complicated forms. Narcotics cannot be dispensed except by special prescription. Specific remedies such as quinine in malaria and mercury in syphilis should not be taken unless the disease has first been accurately diagnosed. Cardiac tonics and diuretics should be given only in well-regulated doses under the doctor's guidance. Judge Jennings says that inasmuch as the great majority of human ills are of a general make-up, such remedies, *i.e.*, prescriptions of a general nature, are appropriate and valuable for the purpose. We do not know what he means by this unless it is that the use of the shotgun prescription once so popular but now regarded as poor medicine, is the most economical way of preserving the health. Even those favorites of the patent medicine man, the cough mixtures and the tonics, should not be consumed indiscriminately.

In fact the entire theory of self-diagnosis or of drug clerks' diagnosis, upon one or the other of which the use of patent medicines depends, is most pernicious, and is likely to lead to the neglect of symptoms which are in reality signals of danger ahead. Even if we assume that the proprietary medicines are cheaper than similar formulae privately compounded we cannot regard them as cheaper in the long run. For one thing their composition is unnecessarily complex. If a definite therapeutic effect is desired, it can be secured best by the use of the simple drug and not by the use of a compound in which the action of various substances tend to obscure one another. The poor can get help in hospitals. Even if they do not avail themselves of this opportunity, they would do much better to in-

vest five dollars in one visit to a competent physician than to spend the same amount or probably much more in self-directed experimentation in pharmacology as contained in the patent medicine bottle.

The time has come when as a result of persistent attempts at education, the more intelligent portion of the public has learned to keep away from patent medicine. It would seem as if the vested interests realize the menace which education holds for their business and hope by such efforts as this one of Judge Jennings to regain their grip upon the imagination of the public. If they expect the medical profession to aid them, they are doomed to disappointment.

THE COLLEGE OF SURGEONS—AND BOSTON.

A GLANCE at the programme extraordinary prepared for the visiting surgeons of the present week arouses feelings of amazement, not entirely unminged with consternation. Apparently every single hour from 9.30 Monday morning to 11.30 Friday night is crammed to overflowing with clinics and conferences, lectures, demonstrations, operations, end-results, registrations and convocations; there are a few brief and fleeting moments left for food and sleep, but for human contact of man to man,—for short intervals during which visitors might glance, if ever so briefly, at many things in Boston, historie, picturesque and more or less medical, there seems to be neither time nor provision. This is, to say the least, unfortunate. But let us hasten to observe that it in no way reflects on Boston hosts, or the physicians of the Hub. It is precisely in the spirit and practice of well nigh all medical meetings in the United States—and based upon the theory that a moment left without formal medical exercises of one or another variety is a moment hopelessly lost.

This view, however, is not held throughout other parts of the world; particularly in Canada, the British Isles, and Central Europe. There the great medical meetings take cognizance of the fact that all work and no play is even worse for adults than for children; there they realize the great and simple truth that the most important element in medical meetings is, literally, in meeting, and talking with, medical men. In direct personal conversation and entirely informal exchange of views, more may often be learned than in listening to lectures, or even attending clinics. This personal contact is both a pleasure and a privilege, and often an inspiration. More time should be permitted for it, and assigned to it. Moreover, the cities in which the annual convocation of the College are held, contain, without exception, features of very great interest to medical men and their families.

In Boston, for example, naming at random

a few of very many things which have, at least remotely, medical aspects, there is:

The Metropolitan Park System—one of the first and finest in the world, of very great importance in relation to the health of the community; a system easily visited, and dotted with memorials of special interest to doctors. One thinks immediately of the Ether Monument, which always brings to mind the well-worn pun: the exedra and sundial upon the Charles River Esplanade, directly in the rear of 298 Beacon Street, bearing the dedication to the poet whose library overlooked it—and the lines from one of his most graceful songs:

"Love dies not when he bows his head
To pass beneath these darkened Portals."

And speaking of Dr. Oliver Wendell Holmes, let it not be forgotten that the actual physical inspiration which resulted in the most beautiful of his verses, the shell which caused him to sing of "The Chambered Nautilus," rests in a cabinet in the Boston Medical Library, in the hall so appropriately named for him.

Adjoining it, in Holmes Hall, is the unique collection of medals acquired by the late Dr. Horatio Storer, who died only a few days ago at Newport. Dr. Storer was at once Harvard's oldest living graduate and one of America's greatest physicians. This collection is by far the most important and the largest in the world, and has been catalogued and arranged by Dr. Malcolm Storer, who, like his father, is an eminent numismatologist.

In the park surrounding Bunker Hill Monument stands the simple granite stone which marks the spot where General Joseph Warren fell—a skilful physician whose name has for 150 years been held highly by five generations of medical men.

Where but in Boston could a doctor say to a companion: "Do you see that gentleman across the street? I cut that man; my father cut his father; my grandfather cut his grandfather!"

How many Bostonians or visitors, as they leave the South Station, realize that the spot from which the "Indians" embarked for the greatest of all afternoon teas is diagonally across Atlantic Avenue on the corner of Pearl Street, and properly marked by tablet and verse? It is credibly believed that among those Boston Indians at least one Boston surgeon brandished, not inappropriately, a knife, and perhaps a tomahawk. How many remember, by walking further along the avenue, one may stand on the very spot upon which the undefeated frigate, the *Constitution*, was built and launched, and from which she set sail; and that looking north-west by north from this spot we still may see the frigate herself—with lofty mast, and powerful spars, just as in 1813, lying quietly at the Navy Yard in Charlestown?

Perhaps it may be a trifle lacking in humor to call the attention of surgeons to graveyards—

but graveyards are parks and precious spots in Boston, and of interest to everyone who reveres the worthy dead. A visit to Copp's Hill burying ground, above the picturesque granite terrace almost opposite Constitution Wharf, becomes a visit of very great interest, both for what may be seen in the yard and for what may be seen from it; it is literally on a hilltop. And in the Old Granary graveyard the surgeon may see the gravestone of Dr. John Jeffries, of gentle memory, next to that of his townsman, Paul Revere, and close to the granite pyramid which the youngest son, Benjamin, raised to his parents, the elder Franklins, and upon which he caused to be placed so admirable an epitaph.

And if the visitors will stray as far afield as Cambridge they may well go "for to admire and for to see" that really beautiful burying ground at Mount Auburn, which was conceived and planned and made possible by Boston's greatest surgeon; in whose name the great golden medal was last night so appropriately bestowed upon his friend, another great American surgeon—Bigelow and Keen, great men, as well as great doctors.

Of course, every visitor should go and worship in the old amphitheatre, high in the rounded dome of the Bulfinch Building at the Massachusetts General Hospital—and gaze reverently about him, upon the room which looks now just as it did on the day when within its walls general anesthesia was first given by American doctors to a suffering world. And they may also look with great interest at the small tablet over the narrow door on Tremont Street, near Pemberton Square, which marks the building in which nitrous oxide gas was first deliberately administered in operative dentistry.

Coming down Tremont Street, let them turn into West and thence to Mason, and glance at the first building ever erected for the Harvard Medical School; a substantial brick structure in which the original lines may still be discerned, notwithstanding that Boston has taken the building and so changed it that it has become as good a fire engine station as it once was a medical school—and for both one of the best in the country.

On Washington Street, opposite Boylston, there stands at present a substantial store within which excellent rugs and carpets may be purchased. Years ago and for many years, good Bostonians purchased equally excellent pastry at this spot: it is also written that the original proprietor and his nephew increased their profits by cutting their pies into *five* quarters, instead of into four; and they still gave more, and better, at the old tariff, than can now be obtained for three times as much: from this simple and apparently unimportant episode—and due largely to it—came two great hospitals to Boston; and to Boston now come medical men from the ends of the earth, to see the work which is done in these institutions. Truly some

substantial gains accrue to those who live in the Great Pie Belt!

Every surgeon coming to Boston should see the Crow Bar, and the Crow Bar Skull, as well as the rest of the great collection in the Warren Museum, three flights up in the Administration Building of the Harvard Medical School: and stand before the case which contains the skeleton of a benefactor of the museum, which, by the provisions of his will, is annually visited and inspected by grave and reverend seniors. Incidentally, if he goes to that school as he should, on foot up through Avenue Louis Pasteur, he may look upon public schools, palaces, academies, hospitals large and small, and many great white laboratories, as many and as fine as may be found in all the world—a singular contrast, indeed, to the old brick fire station in Mason Street.

This list might be extended obviously and indefinitely: no attempt is made to do more than suggest a very small part of the objects and places that might be visited by those interested. Of course, the Public Library and Art Museum may be taken for granted. But none of these things can be done without time—and no time is allowed by the programme; nor, indeed, are such medical and pious pilgrimages even suggested.

Let it be remembered also that the other cities in which the Congress has held convocation, and will yet hold them, have spots and objects equally interesting as those in Boston. New York, Philadelphia, Baltimore, Washington, Chicago and many other places are rich in matters often essentially medical, sometimes partly so and occasionally not at all surgically related, but well worth visit and contemplation by any man who holds the highest ideal of the physician before him as his model.

Would it not be possible to begin clinics at 8.30 A. M., carry them on until 12.30 P. M., begin again at 1 and end at 3 P. M., and then let the doctors, their wives and their friends take a few long breaths of fresh air, and look at some of the other things that make life so well worth living in Boston, and in America?

News Notes.

TUFTS COLLEGE MEDICAL AND DENTAL SCHOOLS.—Medical Registration for the Session of 1922-1923: 1st year, 145; 2nd year, 127; 3rd year, 144; 4th year, 61. Pre-Medical Registration: 1st year, 179; 2nd year, 107. Dental Registration for the Session of 1922-1923: 1st year, 42; 2nd year, 46; 3rd year, 156; 4th year, 127. Pre-Dental Registration: One year, 128.

Dr. Andrew W. Ryan, who has been for several years engaged in industrial research in physiology, has returned to active teaching as Professor of Physiology.

Dr. Benjamin Spector, Assistant Professor of

Anatomy, comes to Tufts from Cornell Medical School, where he taught last year.

DEATH RATE IN BOSTON.—During the week ending October 21, 1922, the number of deaths reported was 204, against 173 last year, with a rate of 13.93. There were 36 deaths under one year of age, against 21 last year. The number of cases of principal reportable diseases were: Diphtheria, 62; Scarlet Fever, 23; Measles, 25; Whooping Cough, 30; Typhoid Fever, 4; Tuberculosis, 45. Included in the above, were the following cases of non-residents: Diphtheria, 12; Scarlet Fever, 6; Typhoid Fever, 3; Tuberculosis, 5. Total deaths from these diseases were: Diphtheria, 4; Tuberculosis, 11. Included in the above, were the following cases of non-residents: Diphtheria, 1; Tuberculosis, 2.

BEVERLY HOSPITAL.—The following is the program of the demonstration clinic held at the Beverly Hospital October 17th:

Fistula in ano. Tumor of the abdomen. Pneumonia. Pneumonia. Fever unexplained. Acute gangrenous cholecystitis. Acute hemorrhagic pancreatitis.

THE JOINT MEETING AT TEWKSBURY.—A joint meeting of Middlesex North, Middlesex East, Essex North and South was held at the State Institution, Tewksbury, on Wednesday, Oct. 18, 1922, with about 200 members in attendance. The visiting members were received by the Superintendent, Dr. John Holyoke Nichols, who, with his corps of assistants, conducted the party in groups about the institution. At 3:30 P. M. all gathered in the chapel, where the meeting was held.

Dr. J. W. Bartol, the President of the parent society, spoke of the reciprocal relation of the society and the individual component units and asked that suggestions be made to the Council as to the various activities of the society. Dr. C. F. Painter discussed some of the problems connected with the duties of the Board of Registration in Medicine and referred to some recently attempted legislation in this connection.

Dr. James S. Stone presented for the consideration of the members several alternative propositions for dealing with the situation arising as a result of complaints concerning certain of the smaller hospitals which have been housing obstetric cases and others which have had the care of insane persons.

Dr. Henry Jackson delivered an address upon Diseases of the Myocardium, illustrating the value of the polygraph and electrocardiograph in diagnosis and prognosis.

Dr. J. H. Nichols gave some interesting and instructive statistics of the infirmary covering his thirty years' connection with the institution.

It was voted unanimously that a similar joint meeting should be an annual feature of the program of the four district societies represented.

Mr. Conant, chairman of the Commissioners of Public Welfare, welcomed the society and voiced a tribute to the efficiency and enthusiasm of the Superintendent, Dr. Nichols.

Dr. Anthony, one of the trustees, spoke of the quality and great variety of professional work accomplished at Tewksbury.

A vote of thanks was extended to the speakers of the afternoon and to Dr. Nichols for his hospitality.

Adjournment at 5:30 was followed by an excellent dinner. William H. Hopkins, M.D., Reporter.

BERKSHIRE DISTRICT MEDICAL SOCIETY.—A meeting of the Berkshire District Medical Society was held at the Richmond Hotel, North Adams, on Thursday evening, October 26th, 1922. Dr. Charles M. Williams, Professor of Diseases of the Skin at the Post Graduate Medical School of New York City, gave a practical talk on the diagnosis and treatment of the more common diseases of the skin, with illustrations.

AT THE MEETING OF THE AMERICAN COLLEGE OF SURGEONS Dr. I. S. F. Dodd, Dr. J. B. Thomas, Dr. B. W. Paddock and Dr. T. P. Hennelly were initiated as Fellows of the College, all residents of Pittsfield.

Directly following this meeting Dr. Thomas and his wife went to Maine, where they will remain for about a month.

The wife of Dr. Louis Barnes of Lanesborough is confined to the House of Mercy Hospital in Pittsfield, following an operation recently performed.

Dr. John J. Boland of Pittsfield has returned to his practice after a visit to New York clinics.

THE MEETING OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.—At the meeting of the Suffolk District Medical Society on Wednesday evening, October 18, an enthusiastic audience, which filled Ware Hall, greeted Dr. John O. Polak, professor of obstetrics in the Long Island College Hospital.

Dr. Polak stated that the title of his address should in reality be "A Plea for Safe Obstetrics." He pointed out the relatively small number of operations in obstetrics which were necessary in a large obstetric service such as he conducts, and he showed that the number of Caesarean sections which he found necessary corresponded very closely with those found necessary in the Johns Hopkins Hospital: about one in 120 cases. He then pointed out the absolute and relative indications for Caesarean section and finally emphasized that there is today too much operating in obstetrics; that Caesarean section is not safe; that unnecessary operations are done, and that, all in all, both the morbidity

and mortality are much higher than in regular abdominal sections; and that, furthermore, Caesarean sections are by no means devoid of risk to the child.

The paper was discussed by Dr. Newell, Dr. DeNormandie, Dr. Ruggles, Dr. Friedman, Dr. Mongan and Dr. Donoghue.

Dr. Donoghue very pertinently pointed out that outside of the large cities there is a scarcity of men trained in obstetric work, and that therefore surgeons were called in who did Caesarean sections where trained obstetricians might deliver by other methods. Dr. Mongan made an earnest plea for the coöperation of all members of the Society with the new Section on Obstetrics in the Massachusetts Medical Society.

THE BOSTON DISPENSARY.—The October meeting of the Medical Staff of the Boston Dispensary was held on Wednesday, October 11th, in the rooms of the Medical Department. Dr. William E. Preble, Physician-in-Chief of the Medical Department, read a paper, "Observations on 1,000 Cases of Obesity," 700 of which were taken from his own records, and 300 from the records of the Boston Dispensary. Charts showing the incidence of high blood pressure, diabetes, nephritis, heart disease, and other conditions, among these 1,000 cases, were also shown.

HARVARD MEDICAL SCHOOL.

At a meeting of the President and Fellows of Harvard College in Boston, October 9, 1922, it was voted to appoint them: Abbott Lawrence of the Boylston Medical Committee:

Dr. Reid Hunt, Secretary, Drs. William T. Porter, Robert W. Lovett, Henry A. Christian, John Warren and Henry Lyman.

The resignation of Lawrence Weld Smith as Instructor in Pathology was received and accepted, to take effect September 1, 1922.

The President nominated the following persons as members of the Administrative Board of the Medical School for the year 1922-23, and it was voted to appoint them: Abbott Lawrence Lowell, ex-officio; David Linn Edsall, ex-officio, Chairman; Algernon Coolidge, Milton Joseph Rosenau, Harvey Cushing, Reid Hunt, John Lewis Bremer, Walter Bradford Cannon, Charles Maefie Campbell, Worth Hale, Simeon Burt Wolbach, Oscar Menderson Schloss, Francis Weld Peabody.

(Consented to by the Board of Overseers at their meeting of October 9, 1922.)

Voted to make the following appointments for one year from September 1, 1922: *Instructors*—Zabdiel Boylston Adams in Orthopedic Surgery, Henry Ingersoll Bowditch in Pediatrics, Lloyd Thornton Brown in Orthopedic

Surgery, Michael Joseph Conroy in Pathology, Louis Riley Daniels in The Practice of Industrial Medicine, Henry Joseph FitzSimmons in Orthopedic Surgery, Otto John Hermann in Surgery, Daniel Fiske Jones in Surgery, Arthur Thornton Legg in Orthopedic Surgery, Halsey Beach Loder in Surgery, Richard Henry Miller in Surgery, Frank Roberts Ober in Orthopedic Surgery, Channing Chamberlain Simmons in Surgery, Marius Nygaard Smith-Petersen in Orthopedic Surgery, Robert Soutter in Orthopedic Surgery, Philip Haskell Sylvester in Pediatrics, Wyman Whittemore in Surgery, Edward Theodore Wyman in Pediatrics.

Assistants.—Percival Bailey in Surgery, William Bradley Breed in Medicine, Albert Howell Brewster in Orthopedic Surgery, Trevor Goff Browne in Pathology, Thomas Ellwood Buckman in Pediatrics, Edward Delos Churchill in Surgery, Bronson Crothers in Pediatrics, Robert Dudley Curtis in Pediatrics, Robert Ogden Dubois in Pediatrics, Paul Waldo Emerson in Pediatrics, Martin Joseph English in Pediatrics, Richard Spelman Eustis in Pediatrics, Ralph Ghormley in Orthopedic Surgery, Frederic Leo Good in Gynecology, Hyman Green in Pediatrics, Francis Browne Grinnell in Bacteriology and Pediatrics, Louis Webb Hill in Pediatrics, Harold Valmore Hyde in Anatomy, Henry Jackson, Jr., in Medicine, Carl Edward Johnson in Comparative Anatomy, Robert Joseph Kirkwood in Pathology, Arthur Bates Lyon in Pediatrics, Arthur Rolan Newsom in Pediatrics, Derric Choate Parmenter in Industrial Medicine, Monroe Jacob Schlesinger in Pathology, Warren Richard Sisson in Pediatrics, Harold Wentworth Stevens in Industrial Medicine, Harry Weiss in Bacteriology, Philip Duncan Wilson in Orthopedic Surgery.

William Charles Boeck, Research Fellow in Comparative Pathology; Selig Hecht, Research Fellow in Physical Chemistry; Charles Carroll Lund, Alumni Assistant in Surgery; Joseph William Schereschewsky, Associate in Preventive Medicine and Hygiene; William Justus Merle Scott, Arthur Tracy Cabot Fellow in charge of Laboratory of Surgical Research.

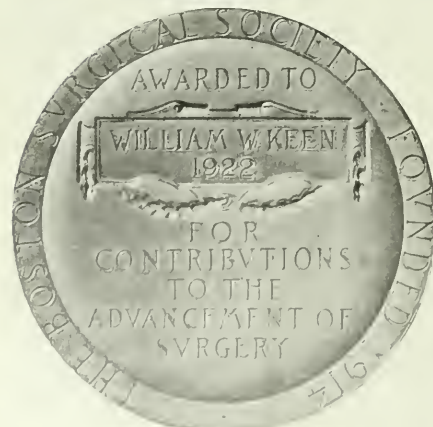
At a meeting of the President and Fellows of Harvard College in Cambridge, June 21, 1922, it was voted to proceed to the election of a Professor of Orthopedic Surgery, to serve from September 1, 1922: Whereupon, ballots being given in, it appeared that Robert Bayley Osgood was elected.

This election carries with it the position as chief of the orthopedic service at the Boston Children's Hospital. Dr. Osgood has, accordingly, been appointed visiting surgeon and head of the orthopedic service at the Children's Hospital in place of Dr. R. W. Lovett, whose resignation has been accepted. Dr. Osgood will assume his new duties at once.

THE BESTOWAL OF THE HENRY J. BIGELOW MEDAL TO DR. KEEN.

A SIMPLE recital of the exercises in Jordan Hall on the evening of October twenty-fifth, even with the copy of Dr. William Williams Keen's address, as published in the JOURNAL of October twenty-sixth, can never convey to those not privileged to be present an adequate appreciation of the dignity of that occasion. The graceful introduction by Dr. Robert W. Lovett, followed by the address of Dr. Keen, delivered with enthusiasm which would have been remarkable in a much younger man, thrilled the audience.

The introduction and the address were recorded in the pages of a previous issue of this JOURNAL, and in completion of the program we now have the honor of publishing the presentation speech of Dr. Harvey Cushing, which will stand as a fitting tribute to the preëminent standing of Dr. Keen as a surgeon, and a gentleman whose life has been devoted to humanity.



(Dr. Cushing's Speech)

DR. KEEN: From time to time, to an individual, "for conspicuous contributions to the advancement of surgery," the Boston Surgical Society awards a gold medal bearing the name and presentment of a man once a great figure in our profession.

This Society has decided on this occasion to make its award not to an individual but to an institution incorporated with unbounded enthusiasm over half a century ago.

The institution to which I refer has been distinguished from the outset for its patriotism; and its first official act as long ago as 1861 was the loan to the Fifth Massachusetts Regiment, and so to the Nation, of an assistant surgeon.

Soon after it came into existence, the same institution established an editorial and publishing bureau, and since the first appearance in print in 1864 of a medical classic entitled "Gun-shot Wounds and Other Injuries of the Nerves," there has followed a series of essays, monographs and volumes of no less interest and importance.

It has given to the profession a succession of teachers in anatomy and surgery in more than one school of medicine—demonstrators, lecturers, professors, and even a professor emeritus—so that its pupils have been legion.

When that most unpromising of all specialties, the surgery of the nervous system, needed an optimistic pioneer, it was called upon to furnish one.

It has provided a most active and courageous champion against the opponents and slanderers of the experimental method in the medical sciences.

It has also provided a series of Fellows, of Trustees, even of Presidents for many scientific, learned and professional bodies at home and abroad—one of them a society founded by our common, though not quite contemporary fellow townsman, the equally many-sided Benjamin Franklin.

It was once said by Horace Greeley that "fame is a vapor, popularity an accident, riches take wings, those who cheer today will curse tomorrow; only one thing endures, and that is character."

Accordingly to you, Sir, to you as an American institution, to you who already stand knee-deep in honors, in all affection and with all humbleness, in the name of the Boston Surgical Society, and by its direction, I present still another award, the Henry Jacob Bigelow Medal, highly deserved not only for your accomplishments and services to medicine, but for that which means more than these—for that more enduring quality—your professional character.

Dr. Keen then thanked the Society for the honor conferred. Dr. Lovett then closed the meeting.

PROGRAMS FOR HOSPITAL CLINICS DURING
CANCER WEEK, NOV. 12 TO 18, 1922.

CARNEY HOSPITAL.

Monday, November 13, 1922.
9:30 A. M.Gynecological Operations and Demonstrations of
End-Results: Dr. P. W. Johnson and Dr. L. E.
Phaneuf.Surgical Operations and Demonstrations of End-
Results: Dr. J. T. Bottomley, Dr. D. F. Mahoney and
Dr. A. McK. Fraser.

THE PETER BENT BRIGHAM HOSPITAL.

AMPHITHEATRE, OPERATING BUILDING,

10 A. M. to 12 M.,
Tuesday, November 14, 1922.The Pathology of Malignant Disease in Relation to
Age: Dr. Wolbach.The Treatment of Malignant Disease of the Pro-
state and Bladder: Dr. Quinby.Malignant Disease of the Central Nervous System:
Dr. Cushing.Symptomatology of Cancer of the Alimentary Tract
and Its Operability: Mouth to Pylorus: Dr. Cheever.
Large Intestine and Rectum: Dr. Homans.Recent Advances in the X-Ray Treatment of
Malignant Disease: Dr. Sosman.

OPERATIVE CLINIC DURING THE MORNING.

COLLIS P. HUNTINGTON MEMORIAL HOSPITAL.

Tuesday, November 13, 1922,
2:30 P. M.The Cancer Commission of Harvard University.
Dr. R. B. Greenough.Radium in the Treatment of Disease,
Dr. William Duane,
Cancer of the Skin,
Dr. L. S. McKittick.The State Free Diagnosis Service,
Dr. J. H. Wright.Cancer of the Buccal Cavity,
Dr. C. C. Simmons.
Cancer of the Uterus,
Dr. G. A. Leland, Jr.Laboratory Work in Bio-Physics,
Dr. W. T. Bovie.Radium in the Treatment of Leukaemia.
Dr. G. R. Minot.Radium in the Treatment of Cancer of the Genito-
Urinary Organs,
Dr. G. G. Smith.The Treatment of Cancer of the Nose, Throat and
Accessory Sinuses,
Dr. D. C. Greene.

THE BOSTON DISPENSARY.

Thursday, November 16, 1922.
11:00 A. M. to 1:00 P. M.1. Medical Department: Dr. William E. Preble and
Associates: Demonstration showing cases and illus-
trating methods of diagnosis, particularly cancer in
the gastro-intestinal tract.2. Dermatological Department: Dr. Henry J.
Perry: Cancer of the Skin and Its Treatment by Ra-
dium.

3. Surgical Department: Dr. Hilbert F. Day.

4. Laboratory Department: Demonstration of
Specimens and Slides: Dr. William A. Hinton.The Dispensary will also offer a Free Clinic on
Thursday, November 16th, on which day patients hav-
ing or fearing they have cancer may come for ex-
amination without charge.

MASSACHUSETTS GENERAL HOSPITAL.

SURGICAL AMPHITHEATRE,

Friday, November 17, 1922,
10 A. M.10:00—The Control of Cancer: Dr. R. B. Greenough.
10:15—Cancer of the Skin: Dr. C. J. White.10:30—Cancer of the Lip and Mouth: Dr. C. C.
Simmons.10:45—Cancer of the Nose and Throat: Dr. D. C.
Greene.11:00—Cancer of the Stomach: Dr. C. L. Scudder.
11:15—Cancer of the Colon and Rectum: Dr. E. P.
Richardson, Dr. L. S. McKittick.

11:30—Cancer of the Breast: Dr. R. B. Greenough.

11:45—Cancer of the Uterus: Dr. Lincoln Davis.

12:00—Cancer of the Genito-Urinary Organs: Dr.
J. D. Barney.12:15—The X-Ray Therapy of Cancer: Dr. G. W.
Holmes.

BOSTON CITY HOSPITAL.

CHEEVER SURGICAL AMPHITHEATRE.

Saturday, November 18, 1922,
10:30 A. M. to 12 M.In coöperation with the Cancer Week Campaign
of the American Society for the Control of Cancer,
the following symposium will be held in the Cheever
Surgical Amphitheatre. Physicians, students and
nurses are welcome.The Pathologist's Conception of Cancer: Dr. F. B.
Mallory.Early Recognition of Uterine Cancer: Dr. R. M.
Green.Roentgen Differentiation of Gastric Malignancy and
Chronic Ulcer: Dr. F. P. Butler.Premalignant and Early Malignant Skin Lesions:
Dr. T. W. Thorndike.Symptoms Suggesting Concealed Malignancy: Dr.
R. C. Larrabee.Detection of Malignancy of the Genito-Urinary
Tract: Dr. H. H. Howard.Radium and X-Ray: Indication for Their Use: Dr.
Herman Osgood.Surgical Procedures for Removal of Malignant
Growths: Dr. Halsey Loder.

Correspondence.

ERRATUM.

Oct. 23, 1922.

Mr. Editor:

My attention has been called to the fact that, through a misunderstanding, I have made an error in my article on "An Investigation of the Reliability of Laboratory Tests, Etc.," recently published in your Journal. In Part I, I stated in relation to Dr. L. S. Medalla's work: "On his request typewritten copies of the technique in use were submitted from the Boston Health Department Laboratory, the State Health Department Diagnostic Laboratory, the State Wassermann Laboratory and from the Board of Health Laboratories in Brookline, Cambridge, and Somerville." Instead, it should have been stated that he visited each of these laboratories and by questions and observations obtained information concerning the technique in use. This information he had typewritten and submitted to the various laboratories for approval; so that these data were gathered at considerable expenditure of time and effort on Dr. Medalla's part.

I will be grateful if you will publish this correction.

Very truly yours,

F. H. SLACK, M.D.

EASTERN HAMPTON MEDICAL ASSOCIATION.

The Eastern Hampton Medical Association will meet at the Hotel Bridgeway, Springfield, Thursday, Nov. 2, at 4.30 p.m. Theme: "Tuberculosis." Speakers: Drs. H. B. Perry, S. D. Rumrill, F. H. Smith, C. J. Spauld, G. L. Woods. E. Y. Myers, M.D., Sec'y.

DR. W. W. KEEN'S ADDRESS ON THE OCCASION OF THE BESTOWAL OF THE BIGELOW MEDAL.

This valuable and interesting contribution to medical literature should be read by every physician and surgeon. A few copies are available and may be secured by applying to the BOSTON MEDICAL AND SURGICAL JOURNAL.

THE MASSACHUSETTS MEDICAL SOCIETY.

JOINT MEETING OF THE BARNSTABLE, BRISTOL NORTH, BRISTOL SOUTH, AND PLYMOUTH DISTRICT SOCIETIES.—The meeting will be held at the Lakeville State Sanatorium, Thursday, Nov. 9, 1922. Luncheon will be served at 1.00 p.m. Program at 2.30 p.m. Speakers: Dr. John W. Bartol, President of the Massachusetts Medical Society; George Chandler Whipple, S.B., Professor of Sanitary Engineering, Harvard University, "Mosquito Control in Massachusetts"; Dr. Eugene R. Kelley, Commissioner of Public Health, Commonwealth of Massachusetts; Benjamin White, Ph.D., Director, Division of Biological Laboratories, Massachusetts Department of Public Health, "The Schick Test" (A Schick demonstration will be given at the conclusion of the program.); Dr. Richard P. Strong, Professor of Tropical Medicine, Harvard Medical School, "The Gorgas Memorial Institute." All fellows of the combined district societies are cordially invited to be present at this meeting.

SUMNER COOLIDGE, M.D., *President*.

ARTHUR R. CRANDELL, M.D., *Secretary*.

DISEASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING OCTOBER 21, 1922.

<i>Disease.</i>	<i>Cases.</i>	<i>Disease.</i>	<i>Cases.</i>
Anterior poliomyelitis	6	Ophthalmia neonatorum	12
Chicken-pox	60	Pellagra	1
Diphtheria	236	Pneumonia, lobar	49
Dog-bite requiring antirabic treatment	10	Scarlet fever	112
Encephalitis lethargica	2	Septic sore throat	2
Epidemic cerebrospinal meningitis	1	Syphilis	32
German measles	2	Suppurative conjunctivitis	6
Gonorrhea	133	Tetanus	3
Influenza	3	Tuberculosis, pulmonary	110
Mumps	39	Tuberculosis, other forms	14
Measles	139	Typhoid fever	12
		Whooping cough	161

ERRATA.

In the article in this issue under the title "New England Hospital Association," on p. 637, under cross infection rate, the figures 63, for the year 1912, should be 6.3, and 17, for the year 1913, should be 1.7.

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Ivanna, November 3, 1922, February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol South District:—Fall River, November 2, 1922, May 8, 1923.

Essex North District:—Haverhill, (Semi-Annual Meeting)—Jan. 8, 1923. Y. M. O. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Suffolk District:—Combined meeting of Boston Medical Library and Suffolk District, November 22, 1922; December 27, 1922; January 31, 1923; February 28, 1923; March 28, 1923; Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District:—Meetings; Wednesday, January 31, 1923.

Worcester District meetings in Worcester, Nov. 8, Dec. 13, 1922, Jan. 10, Feb. 14, March 14, April 11 and May 9, 1923, the last named date being the annual meeting.

A joint meeting of the Plymouth, Bristol North, Bristol South and Barnstable Districts will be held at Lakeville Sanatorium, Middleboro, on November 9, 1922.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

November, 1922. Massachusetts Society of Examining Physicians, (Date and place of meeting undecided), Hilbert F. Day, Secretary. National Cancer Week, November 12 to 15.

December, 1922. New England Dermatological Society Meeting, Wednesday, December 13, 1922, at 3.30 p.m., in the Surgical Amphitheatre, Boston City Hospital, O. Guy Lane, Secretary.

January, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 26, Annual Meeting, Boston, W. H. Allen, Mansfield, Mass., Secretary.

February, 1923. New England Dermatological Society Meeting, February 14, 1923, at 3.30 p.m., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

March, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary.

April, 1923. New England Dermatological Society Meeting, April 11, 1923, at 3.30 p.m., in the Surgical Amphitheatre, Boston City Hospital, O. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston, W. H. Allen, Mansfield, Mass., Secretary.

May, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided). American Pediatric Society Meeting, May 31, June 2 and 3, 1923, at French Lick Springs Hotel, French Lick, Ind., H. C. Carpenter, Secretary.

June, 1923. American Medical Association, San Francisco, June 25-29, 1923, Alexander R. Craig,* Chicago, Ill., Secretary.

July, 1923. Massachusetts Association of Boards of Health, July 26, Nantasket, W. H. Allen, Mansfield, Mass., Secretary.

*Deceased Sept. 2, 1922.

The Massachusetts Medical Society

OFFICERS ELECTED BY THE COUNCIL JUNE 13, 1922

1922—1923

PRESIDENT

JOHN W. BARTOL, 3 Chestnut Street, Boston, 9.

VICE-PRESIDENT

CHARLES E. MONGAN, 24 Central St., Somerville

SECRETARY

WALTER L. BURRAGE,
42 Eliot Street, Jamaica Plain, 30

TREASURER

ARTHUR K. STONE,
Auburn Street, Framingham Center.

LIBRARIAN EMERITUS

EDWIN H. BRIGHAM,
Brookline; Office, 8 The Fenway, Boston, 17.

NOTICE TO THE FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY.

CHANGES OF ADDRESS.

In view of the action of the Council, February 1, 1922, in advancing Librarian E. H. Brigham to the honorable position of Librarian Emeritus, after a continuous service of thirty-seven years, in future, all communications as to membership, especially changes of residence and address, should be sent to the Secretary of the Society, who keeps a constantly corrected official list of the Fellows and their addresses.

The Boston Medical and Surgical Journal

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Original Article.

CONVALESCENCE: I. A CHRONOLOGICAL REVIEW, TO 1878.

BY JOHN BRYANT, M.D., BOSTON.

INTRODUCTION.

The general subject of Convalescence occupies a rather unique position. On the one hand, the early recognition of the importance of this transition stage between sickness and health is witnessed by the writings of Hippocrates and his successors; and appreciation of the necessity for giving organized consideration to the period of convalescence had already reached such a stage that in Paris both the Hotel Dieu and the Charité Hospital, in 1640 and 1650, made special provision for the care of convalescent patients. On the other hand, although there doubtless are in the literature numerous references to various aspects of convalescence under other titles, and although a French reference in 1877 by Brochin listed a bibliography of 136 titles, there were available previous to 1920 in both the Index Medicus and the Index of the Surgeon-General's Library, a total of only ninety-two articles listed under the general title of Convalescence.

This absence of any extensive literature seems accurately to mirror the chronic apathy of the medical profession with regard to serious interest in the subject of convalescence,—a lack of interest which is doubtless promoted by inadequate

instruction in the subject at all medical schools. This lack of instruction is perhaps itself in part based upon the fact that the period of convalescence is not a subject well adapted to easy demonstration in the clinic or lecture room; obviously, where changes are demonstrable in weeks rather than in days or hours, there is nothing comparable for teaching purposes to the visibility of a broken leg, or the acoustic demonstration of the flatness of a lobar pneumonia as indicated by a slap on the back with the flat of a hand.

The total result of this lack of interest is that with the exception of a few shining examples such as the Burke Foundation, care of convalescent patients has for the most part been left to drift by itself without intensive medical supervision; in consequence, this is almost the only branch of medicine which has made minimal progress in the last fifty years or more.

It is now authoritatively stated that every city should provide beds for convalescent patients in the ratio of 1:10 acute hospital beds. All cities fall far below this estimate in their provision for convalescents, yet even such homes for this class as do exist are for the most part not used to capacity, and almost none are under the daily care of an interested and experienced physician. The result is that the funds of such institutions for convalescents as do exist are not used to best advantage; the patients either waste their own time or it is wasted for them and they are sent back to work in a condition of health

less good than they had a right to expect to find themselves in, at the conclusion of a definite period of care which should average about three weeks. Bridgman has proved that the average patient who has previously been sufficiently ill to require the average stay of 18-20 days in an acute hospital, has also been sufficiently ill to require an additional average period of three weeks of intelligent care during convalescence; not otherwise can this average patient be considered to have sufficiently recovered his health, to make it reasonably certain that he can successfully hold down a permanent job.

Not only is a lack of medical interest in convalescence noticeable in individual institutions, but such knowledge as has been accumulated is not passed on from generation to generation. Thus, although definite convalescent experience was acquired, for example, by England during the Crimean War, and by this country during the Civil War, practically all the nations engaged in the recent World War failed to profit by such previous experiences; this resulted in decreased efficiency of the war machines and necessarily increased wreckage of the individuals thus neglected. Running true to form, it appears that we are already in a fair way to forget what we have learned with regard to convalescence from our own most recent war experiences, before the next disaster arises.

One object of the present publication will have been accomplished in so far as it results in converting the prevailing attitude of passive neglect, into one of active, not to say, aggressive interest in the convalescent patient and chronic invalid. Such a change in the general viewpoint can be based only upon a widespread knowledge that more can be done than in the past has been done, upon how to do it, and upon the reasons why it should be done. That more can be done than has been done, will be shown hereafter; also, how it may be done, or at least some ways of doing it.

The reasons why it should be done, or the more obvious of them, will be clear to anyone who will consider the subject for even a moment. There are three points of view: that of the community, the hospital, and the individual patient.

To the community, the individual represents in varying degree and in accordance with his total value as a moral physical and economic efficiency unit, an asset, a cipher, or a potential or actual liability. Every working day lost interferes by just so much with the industrial efficiency of the community in which the sick man lives. The economic loss may be figured out at the end of a week or of a year, and should in some way be made good, either through previous earnings of the patient, or at the expense of some other person or organization.

The hospital point of view includes that of the social workers and the poor relief agencies. On the one hand, with every unnecessary day

passed in hospital there is a double financial loss: the institution itself is put to unnecessary expense which must eventually be made good through additional requests for financial support from its benefactors; and the patient is deprived of just one additional day's wages which he would have earned if physically able to be back on his job again. On the other hand, if the patient is discharged too early in recovery, he again becomes an object of obligatory interest to the social worker and the relief agency, by whom arrangements must be made for the financial support of perhaps not only the patient but his dependants until such time as full working power is re-established in the patient; here again, the financial loss is double, since to the outlay by the relief agency must be added the loss in wages of the worker.

The individual patient has a point of view in no wise different from that of the community or the hospital except that it is necessarily more personal, for in this case also the problem of convalescence may be reduced to the common denominator of costs. Even in the distant past, Plato knew that the poor man had no time to be sick, and a century ago Robertson wrote that "for the feeble and disabled of our manufacturing population, poverty renders lingering sickness in every instance a heavy and often an irretrievable calamity." But in the case of the individual, precisely because the point of view is more personal, there is proportionately more mental suffering which may easily in its turn become a very real factor in delaying still further the actual convalescence of the patient.

From every point of view, therefore, there is but one conclusion. Putting aside all sentimental, moral, ethical or other considerations, it can be demonstrated that the active and intelligent care of convalescence will pay utilitarian dividends; in a word, the community which invests money in improving the care provided for its workers during convalescence, will earn regular and continuous returns no less certainly than if the same amount of money had been invested in government bonds. With even greater certainty such a community will be storing up treasures of another kind for itself, of immediate and increasing value, in the shape of the multiplying health, happiness and prosperity of its individual workers.

To facilitate to the greatest possible extent the dissemination of interest in any subject, easily available knowledge is necessary.

Information upon the subject of convalescence is, however, not easily available. On the contrary, it is for the most part rather well buried in old or foreign literature, or in hospital reports not widely known.

With the above facts in mind, the following review of the literature is presented. It is to be the first of a series of papers upon various aspects of convalescent work. It is hoped that

these papers may to some extent supply the available information upon the existence of which must depend a rational and effective growth of interest in a vital phase of modern preventive medicine.

1732-1800.

The Surgeon-General's Index gives only seven titles under "Convalescence," previous to the year 1800. Of these only one, the earliest, was available at the Boston Medical Library. This was a graduation thesis by Heylerus, published in Leipzig in 1732 under the title "*De Statu Convalescentia.*"

Heylerus gave a general review of various types of disease, and presented a list of drugs and foods which might aid in convalescence; his thesis was, however, mostly given over to abstracting the opinions of earlier authorities. Thus, Celsus advised rest after meals. Hippocrates was quoted frequently; among other things he advised moderation in exercise. Sydenham referred to the importance of hygiene. Seneca insisted upon peace of mind. Galen advised riding and travelling. Hoffmannus referred to the necessity for tranquil sleep in promoting a return to health. In addition, Caledonius, Solon, Cato, Wedelius and various other early notables were quoted in what was essentially a summary of all knowledge which in the year 1732 might be brought to bear to improve the care of convalescence.

1800-1878.

The example set by Heylerus in writing a graduation thesis upon the subject of convalescence seems to have been followed extensively at the French Universities during the first half of the last century; at least, the majority of the titles in the Surgeon-General's Index under "Convalescence" dating from this period, are of this character. This seems to have been a symptom of the increasingly wide spread of interest in convalescence in these earlier years of the last century, for numerous articles upon the subject were written not only in France but in England and America. Two of the graduation theses will suffice to suggest the sympathetic attitude of the French toward the convalescent patient of the early nineteenth century.

Foureaud wrote in 1802, under the title "*Doit-on laisser les Convalescents avec les Malades?*" This is a question which is today no less fundamental although perhaps less obvious than at a time when the patients were more likely to die than live if they remained in hospital a single unnecessary day after the termination of the acute stage of disease. Foureaud appreciated the fact that "convalescents, who in their feebleness approach the condition of infants or the elderly, must have food appropriate for these persons." He also recognized that "food in its passage through the hospital halls acquires dis-

agreeable odors in spite of all precautions," and that "for this reason alone the convalescents should be separated from the sick." He emphasized the necessity for moral as well as physical care, and stressed the value of light and air as aids to returning health. The necessity for light, he placed also upon the special basis of avoidance of the fears which might be engendered by remaining in darkness or in a darkened room. Games and amusements were highly recommended as promoting "the tranquil spirit necessary for recovery," and Foureaud firmly believed that "all causes tending toward fear or depression must be avoided or excluded in order to promote a favorable psychic state." He, therefore, logically concluded that "for every conceivable reason, the convalescents should be separated from the sick."

A few years later, Maret in 1834 wrote upon "*Considerations General Sur La Convalescence.*" He, too, mentioned the "capriciousness" of the appetite of the convalescent. In addition, he referred to the characteristic increased nervous irritability, the poor circulation and the muscular exhaustion progressing at times to a point where the "least movement causes pain and fatigue." The poor memory of the convalescent and the failure of the imagination were noted, as also the fact that an attempt to walk might result in such trembling as to make it impossible for the weakened patient to sustain his own body weight. In the way of treatment, fresh air and sunshine were considered absolutely necessary, but it was appreciated that "cold is the enemy of the nerves"; consequently the use of woolen clothing was advised. Also, he approved the use of simple but good food, and controlled exercise for the improvement of the muscular system. Maret further realized that drugs were seldom needed, that occupation was desirable, and that depression must be avoided; concluding, he emphasized the fact that fundamentally recovery depends upon the "regaining of moral and intellectual control over the body."

The undesirability of promiscuous drugging was recognized by Cook, writing in this country in 1833. Cook also well understood the fact that many convalescent patients were brought almost to a point of death or at least to the point of retardation of expected progress by well-meaning but over-officious friends. Leaving the undesirable ministrations of friends out of consideration, however, he was confident that improper bowel action was the fundamental cause of delayed convalescence. He realized that moderation in diet was necessary; if there were no appetite, he believed that food should not be forced since it merely resulted in "a heavy stomach, wind, sour fluid, griping, and looseness." Exercise, he held to be important, but knew it to be equally important that the exercise should not cause the patient actually to overdo. He intended, therefore, to hold the patient back from

exercise rather than to force him beyond his strength, saying that where health prevailed ambition and desire would soon enough return. The following observation by Cook concerning the use of opiates in insomnia will bear repetition. "Insomnia is due to too much appetite and too little exercise. It is a small inconvenience, which may be lightened very much not by yielding to impatience about it, but by giving over one's mind to thinking upon those important subjects which every man of sense ought to be glad of an undisturbed opportunity of considering."

In England at this period, various writers were alive to the importance of the care of convalescence,—as witness an article by Robertson in 1837. Robertson contrasted the differences in the average duration of life between the English operatives at Manchester and the savage races. He indicated that although the total duration of life was greater in English operatives, chronic illness was enormously higher for the Manchester operatives than for the savage races, about three-fourths of the population of Manchester requiring medical assistance of some form each year. Robertson then discussed the impossibility of producing real improvement in an operative chronically ill, without getting this operative away from unfavorable home conditions. He pointed out the large numbers of retreats for convalescents available for the wealthy, concluding with the following sentence:

"If then the opulent have, long since, discovered that a convalescent's retreat is good for them, will any venture to say that it is not equally good, and infinitely more necessary, for the feeble and disabled of our manufacturing population?"

After outlining the character of the Homes for Convalescents which he recommended, indicating that individual homes should have about one hundred beds, Robertson said it should be understood that no persons laboring under active forms of illness should on any account find admission. He then added the following:

"It has been suggested to me that such a retreat ought to be within six or eight miles of the town to which it belongs, rather than farther off: but there are many reasons why it should not be within a short distance, and why it ought to be on the sea coast. In the first place, it would require (supposing the town to be inland, and this I am all along supposing), the expensive purchase of a large space of ground, in order to secure to the convalescents sufficient room for exercise; whereas on the sea coast there is (with the most perfect change of air, and what is of importance to people from inland parts, complete novelty of scene), unbounded range without risk of trespassing on private property. In the next place, it is essential, in such an institution, that it be quite removed from the intru-

sion and frequent visits of the relations and friends of the convalescents."

Robertson offered the following reference to early French care of convalescents:

"In Howard's account of his inspection of the Hotel Dieu at Lyons, in 1775, allusion is made to two large upper rooms, airy and pleasant, named 'Chambres de Convalescence.' To these they remove patients that are recovering, and those whom I saw there said they were very refreshing. They came down from them at meals to a refectory or hall. These rooms soon complete the patient's recovery."

A graduation thesis written in 1844 by Vidard-Dupin, "*Du Régime Alimentaire Dans La Convalescence*," shows the continuing French interest in the diet of the convalescent patient. This author stated most emphatically that "convalescence no less than disease belongs to the physician," especially with regard to the diet. The blood he recognized as the "moderator of the nervous system," and stated that the muscles "must be refreshed in order to cause a disappearance of the preponderance of the nervous system." He recognized that great care was necessary to avoid sudden death from too rapid eating after fasting. Vegetables he considered less efficient in appeasing the appetite than animal foods; he also believed they gave less strength. Among special dishes, he mentioned the use of gelatin, fresh butter, fresh cheeses and the starchy foods. Vidard-Dupin was aware of the undesirable effects of nervous anxiety and stated that it was the business of the physician (a) to produce in the patient a tranquil spirit, (b) to see that he avoided all excesses, and (c) to allow him whenever possible, any especially desired foods. As an appetizer he approved of taking a bath an hour before meals, following this with friction by dry flannel. In conclusion, the advice is given that in the treatment of the individual convalescent patient, age, sex, temperament, habits, climate, the seasons, and all other complications must be carefully considered.

The recognition of the existence of the problems of convalescents in the care of soldiers during wars is, doubtless, very ancient. MacLean, however, writing in 1867, leaves it a matter of record that active divisions of convalescents existed in the medical department of the British army during the Crimean War. Incidentally, it was MacLean who provided Da Costa with his nomenclature of "Irritable Heart." MacLean was the first to report the extensive occurrence of the "Irritable Heart" in soldiers. He stated that they were found "not only in the regular medical and surgical divisions, but also in the convalescents' divisions." His general observations upon the characteristics of these substandard soldiers are summarized in the following sentence: "the official nomenclature in use in the service has no heading under which to in-

clude what may be called the 'Irritable Heart'—that rapid tumultuous action so common among soldiers; and which, once established, is never got rid of so long as a man remains in the Army and wears the dress and accoutrements of the infantry soldier."

Da Costa, following MacLean's nomenclature, reported in 1872 upon his own Civil War cases of "Irritable Heart." He referred to his own use of classification for soldiers in groups according to various degrees of physical disability, and emphasized the necessity for giving more attention to the period of convalescence as a means of improving physical efficiency within the Army.

A few years later, Brochin (1877), again in France, reviewed the clinical and the historical aspects of convalescence interestingly and in detail in two long articles for the "*Dictionnaire Encyclopédique des Sciences Médicales*." These articles are so comprehensive and the other literature upon convalescence is so scanty, that it has seemed desirable to abstract from Brochin at length in order that his work may be more accessible to students of Convalescence than as originally published in an old French Encyclopedia of Medicine.

"*Convalescent Hospitals*.—There were in Paris, in the seventeenth century, two hospitals for convalescents: the division of the Hotel Dieu, and that of the Charité. The convalescents' section of the Hotel Dieu was founded about 1640, and that of the Charité in 1650. The cause of the disappearance of these sections lies less in the disorders which increasingly augmented the number of convalescents at the Hotel Dieu than in the necessity which existed at the commencement of this century, of providing shelter for all the acutely sick. There were then in hospital, according to the calculations of Tenon, two-thirds acutely sick and one-third convalescent. It was, however, recognized that wards for convalescents were indispensable. A royal ordinance under date of 1781, concerning the military hospitals, indicated the reasons which in the preceding century had determined the creation of special hospitals for convalescents. It was said in this ordinance that 'to obviate the prolongation of convalescence, occasioned by the bad quality of the air breathed in the acute hospitals, there should be established in connection with the principal military hospitals, and above all in connection with those situated in cities where the air is particularly damp, hospitals for convalescents, which should be located either in neighboring towns or in the country.'

"In the hospitals which, after the plan of Tenon, were to replace the Hotel Dieu in Paris, the convalescents were to be placed on the ground floor, convenient to dry walks, warmed in winter, etc.

"The committee of the Academy of Sciences, reporting upon the hospital situation, expressed

itself as follows: a hospital in which one proposes to cure people, should take care of its convalescent patients. The ground floor, sufficiently raised above the soil, should be especially reserved for convalescent patients,—an arrangement which will facilitate for them not only walking, but the exercise of their increasing strength in the open air, etc.

"Later, the general council occupied itself on several occasions, as in 1802, 1824, and 1838, with methods of protecting convalescent patients from the infected air in the regular wards; but for various reasons which would take too long to enumerate here, these projects never came to anything.

"In short, from the time of the closing of the convalescents' hospitals of the seventeenth century, the situation as it existed with regard to convalescents in the regular hospitals underwent not a single modification. The convalescents continued intermingled with the seriously ill patients,—a deplorable system of promiscuousness which had indeed claimed a sufficient number of victims, when in 1855 the Emperor Napoleon III, struck by these dangers, decreed the foundation of special hospitals for the care of convalescent patients of the working classes. The decree under date of March eighteenth which created or, rather, re-established, this mode of public assistance, stipulated among other things that these hospitals should be open to convalescents of the working class, especially to those who had been injured in the course of their daily work; also it stipulated that in the case of those qualified for admission to the hospitals, but yet desiring to remain at home, the right of admission could be converted into a monthly or annual grant.

"*Convalescent Hospital of Vincennes*.—The foundation stone of the Hospital of Vincennes was solemnly laid on the fourteenth of August, 1855, and on the thirty-first of August, 1857, two years later, the institution was opened.

"On the following twenty-eighth of October an imperial decree classified the hospital among the general charitable institutions, and placed it under the authority of the Minister of the Interior.

"The original plan provided for 460 convalescents, but the rapid development of the institution which, in 1861, had already received 7752 patients, produced a state of affairs which made necessary an increase in capacity. Additional wings were, therefore, constructed, which brought the total capacity of the institution to 522 beds for convalescents.

"The hospital, constructed opposite the Maison de Charenton, and located in the midst of about 40 acres of land set aside from the park of Vincennes, is composed of two long wings on either side of a central pavilion. Near the entrance, to right and left of the driveway, there are located in two lateral pavilions the quarters

of the personnel and administrative services. In the centre, along the axis of the main pavilion, are placed all the general services; the rooms and dormitories for convalescents occupy the ground floor and the two stories of the main wings and the pavilion.

"The hospital itself is surrounded by gardens, with pleasant views across an extensive and carefully planted park.

"The buildings themselves are laid out from east to west in such a way that the wings destined for living quarters are exposed to the sun at noon, with agreeable views across the gardens and the park.

"The individual rooms, arranged to contain three beds each, are located on the ground floor, above which are two stories reached by staircases situated at the ends of each wing. All the corridors for the rooms are on the north side and terminate in two wide staircases on either side of the central building. The living quarters are warmed by heaters which maintain an average temperature of from 60 to 65° F.; a ventilating system changes the air at will throughout the year in the bedrooms. The corridors are lighted with gas throughout the night, the rooms only until bed-time, at nine o'clock.

"The infirmary includes one 16-bed medical ward, two surgical wards of 16 beds each, and a ward for infectious diseases to care for five patients. Aside from this, there is on the ground floor a ward of eight beds for injured patients who cannot be otherwise cared for easily.

"The dining-rooms, high of ceiling, paved with asphalt, and lighted on both sides throughout their length with large windows, are furnished with fixed marble tables and carved oak chairs. The kitchen is placed between the two dining-rooms, with its supply rooms in a basement, the two connected by an inclined walk to facilitate the transit of supplies.

"The hospital is administered under the authority of the Minister of the Interior, by a responsible director assisted by a consulting commission of seven members, one or more of the members changing each year.

"The medical care is divided between two chiefs of service, each assisted by three interns. The interns live in the hospital.

"The infirmary is in charge of a Sister with three assistants. When necessary, a Sister is on duty at night.

"A bathroom, adequate for sixteen bathers, and a room for hydrotherapy are at the disposal of the medical service.

"A Sister is in charge of the drugs, under the supervision of the pharmacist of the Charcotton Hospital. Prescriptions are limited to simple remedies.

"Every morning, excepting Sundays and holidays, the physicians make a ward visit at the hospital, accompanied by the interns, who in-

form them of developments since the previous day. The Sister in charge of the pharmacy examines the orders of the day and assures their carrying out.

"The interns alternate on duty throughout the twenty-four hours. They care for the ordinary medical needs of the patients; should there arise more serious necessity, they immediately inform their chiefs of service.

"*Rules for Admission.*—The hospital admits for the treatment of convalescence the following:

- 1—Those suffering injury or sickness resulting from their being engaged in public works in progress in the Department of the Seine;
- 2—Those belonging to mutual aid societies paying yearly retainers to the hospital to secure care during convalescence for their members;
- 3—Those working in industrial establishments the owners of which have contributed to the support of the hospital;
- 4—Those patients convalescent from hospitals in the Department of the Seine, or sent by charitable organizations.

"The hospital receives also, but on a pay basis, all other convalescents who do not fall into one of the four above groups; members belonging to mutual aid societies approved by the Department of the Seine are also received in the hospital.

"The price per day for those coming from industrial establishments as above, is seventy-five centimes.

"Those who do not fall into any of the above categories may be admitted at one franc per day.

"(When necessary, patients may have their charges reduced or are admitted free.)

"*Arrival of the Convalescents at the Hospital.*—Special conveyances collect the convalescents in Paris for transportation to the hospital, and return them to Paris on the completion of their stay. On arrival at the hospital, the intern on duty receives and examines the new patients, classifies them according to their condition, prescribes a routine and dispenses any urgent medication, should there be need of such previous to the next visit of the chief of service. If the chief of service should conclude that the convalescent patient is not strong enough to undergo the regular routine, he orders him to the infirmary.

"*Duration of Stay of the Patients.*—The length of stay of convalescent patients at the hospital is very variable. The usual duration is fixed at two weeks. After this length of time if the condition of the convalescent patient requires it the director can upon advice of the physician authorize the patient to remain in the hospital for a second two weeks; but at the end of this period, the director can obtain even fur-

ther extension of time should the physician judge it to be necessary.

"The average duration of stay is 21 days. The departure of the patients about to leave is announced on the evening previous to the day on which departure is effective. Those leaving are taken back to Paris.

"*Routine.*—The hours for meals have been in so far as possible fixed according to the habits of the workers; at 7 in the morning—soup; at 10 o'clock—the noon meal; and at 6 o'clock—dinner.

"It is perhaps of interest to mention a few details concerning clothing, sleeping, occupations, and the daily routine. Each convalescent at the time of his arrival is provided with special clothing composed in winter of a blue overcoat, with hat of the same material, a blouse and straw hat for the warm season, and a pair of sandals. The patients sleep upon iron beds provided with hair mattresses. Each convalescent has, in addition, the comfort of an arm-chair, and a clothes closet.

"The convalescents enter freely, stimulated by small cash compensations, into maintenance work, such as the repairing of clothing and furniture. They are also occupied in special departments of the hospital, in farming, in work upon the outside grounds, and in various of the services, such as the pharmacy, the room for surgical dressings, the kitchen, dining-rooms, laundry, etc.

"Various entertainments are authorized, for recreational purposes, and to occupy the spare time of the convalescents, a special room being set aside for these activities; they have as additional resources, walks in the park, among the flower gardens, under the shade of the trees in the formal gardens, etc.

"The convalescent patients are required to carry out a schedule only with regard to the hours of rising, ward visits of the physicians, baths, dressings, hours for meals, and any special work upon which they are engaged.

"Three times weekly, Sunday, Monday and Thursday, from 12 to 4, is the visiting hour for family and friends.

"In addition, the institution possesses a library, rooms for singing and for music, a large meeting hall, and even a theater which is used occasionally,—that is to say, whenever there are among the convalescent patients a sufficient number of persons who can take the necessary parts.

"A general report follows, covering the convalescent patients admitted to the institution and to the infirmaries since 1858, the first year in which the institution was in full running order.

"The published official medical reports show that in the period between 1857 and 1866, approximately 57,844 convalescents entered the hospital, 37,824 of whom were suffering with medical and 20,024 with surgical complaints.

"The most frequent medical complaints were as follows: Affections of the lungs, affections of the digestive apparatus, rheumatism, typhoid fever, smallpox, erysipelas, and accidents due to the use of toxic substances.

ADMISSIONS TO THE HOSPITAL.

Years	Medical	Surgical	Totals
1866...	6,937	3,557	10,419
1867...	6,956	3,991	10,817
1868...	7,280	4,260	11,640
1869...	7,359	4,593	11,855
1870...	5,970	2,742	8,712
1871...	1,482	1,007	2,589
1872...	3,819	2,517	6,355
1873...	4,951	4,004	8,955
1874...	5,186	3,452	8,638
1875...	4,810	3,549	8,338

ADMISSIONS TO THE INFIRMARIES.

	Galerie Dupuytren	Galerie Laennec	Totals
1866...			687
1867...			617
1868...			866
1869...	415	583	998
1870...	758	382	640
1871...	98	139	237
1872...	235	254	487
1873...	274	328	603
1874...	285	319	602
1875...	303	333	641

"On the surgical services, the most numerous cases were fractures, phlegmons, white swellings, eye complaints, and amputations.

"In the same period, with a total population of 57,844, there were 249 deaths, accounted for as follows:

Diseases of the lungs.....	61
Fevers	58
Diseases of the nervous system.....	46
Diseases of the circulation.....	24
Cachexias	16
Diseases of the digestive organs.....	10
Diseases of the joints.....	4
Diseases of the mouth.....	4
Diseases of the genito-urinary organs.....	2
Contagious Diseases	1
Contusions and Burns	1
Diseases of the eyes	1
Dropsy	1
Diseases of the skin.....	1
Epidemic diseases	1
Other Diseases	18

"*Convalescent Hospital of Vesinet.*—The hospital of Vesinet was built in conformity with the decree of March 8, 1855, and of August 11, 1859, to receive temporarily women of the working classes during convalescence. This hospital, constructed according to the plan of M. Laval, completed in 1859, was opened on September 29 of the same year. Situated toward the southwest corner of the Forest of Vesinet, in the commune de Croissy, this establishment is set in a park of approximately 90 acres, enclosed by walls. It consists of a large central building connecting with lateral wings by means of covered galleries. The central building contains on the ground floor the dining-rooms, and

on the first floor above, two work rooms separated by a chapel which occupies the central pavilion. The wings on the right side of the Court of Honor are three stories high and are used for the offices and quarters of the administration. The left wings are given over to quarters for convalescents. The individual wards contain from two to eleven beds, divided between the ground floor and the two upper floors. The total number of beds is 350, with in addition 50 beds for infants.

"These wings are provided with sanitary arrangements and hot and cold water.

"All the wards are heated with hot-air heaters, combined with a propulsion ventilating system for all seasons of the year, aided by a small vaporizing machine from which the exhaust steam is also used for the infirmaries and the baths.

"A vegetable garden, irrigated throughout its entire extent, is placed in the southwest corner of the park; between it and the main buildings is the dairy.

"The Hospital of Vesinet is administered under the authority of the Minister of the Interior, by a responsible director, assisted by a consulting commission.

"The personnel is composed of a director, an auditor, a chaplain, a physician, three interns, 15 hospital sisters, servants, etc. Convalescent working women residing in the Department of the Seine who are not sent through usual sources, such as hospitals, charitable organizations, and mutual aid societies, may be admitted on payment of a small daily charge.

"From the 8th of December, 1859, the day of the opening of the hospital, to January 1, 1866, there were received 22,504 convalescent women and 2263 infants.

"The average duration of stay at the hospital is 23 days. The admissions are highest during the months of August, September and October, and decrease markedly during the winter. Extensions of stay can be obtained by authorization of the Minister of the Interior, for convalescent women whose recovery is not completed. From 1859 to 1866 there were granted 1109 extensions of stay.

"The classes from which come the largest number of convalescents are: Domestic, dress-makers, washwomen, seamstresses, lady's shoemakers, and florists.

"The physician makes a daily visit at 8 o'clock. The medical reports show that the most frequent diseases causing admission are typhoid fever, phthisis, bronchitis, pneumonia, and rheumatism. Next in frequency come chlorosis and chloro-anæmia.

"One of the most numerous classes of patients is that of women following child-birth. They are sent in general from hospital services where they were delivered, about seven or eight days after delivery. A considerable number of these women come with their infants

whom they nurse. If an absence of breast milk occurs, or if the mother is sick, or if for any other reason the infant cannot take the breast, there is available a nursery located near where the mothers sleep.

"All infants arriving at the hospital with their mothers are without exception vaccinated if this has not been previously done.

"The infirmary contains 20 beds, intended to care for: Mothers arriving at the hospital so early in convalescence as to require special care, so that for this reason they cannot carry out the regular routine; convalescents with surgical complaints necessitating particularly careful dressings; convalescents made worse during their stay at the hospital, either by intercurrent disease, or by a relapse, or by accidents not sufficiently dangerous to require return to the hospital from which they came in the city of Paris. These three classes of patients fall under the same régime and receive the same care as those in city hospital wards.

"Admissions to the infirmary between 1859 and 1866 were 11,096 out of a total of 22,504 convalescents. The average duration of stay at the hospital was 25 days. From the time of the opening of the hospital there have been 76 deaths out of a total of 22,504 convalescents, including those in the open wards and in the infirmary, due to the following causes:

Contagious diseases	18
Diseases of the lungs	15
Fevers	15
Cachexias	12
Diseases of the circulation	8
Diseases of the genito-urinary organs.....	2
Diseases of the digestion	1
Diseases of the nervous system	1
Other diseases	4

"Deaths among the infants accompanying their mothers to the hospital are very numerous. In 1861, of 296 infants, 54 died; in 1862, 26 of 267; in 1863, 33 of 332. Beginning with the year 1864 the number of deaths decreased; in this year there were only 18 out of 456 infants, and in 1865 there were only 30 out of 688.

"*Private Convalescent Hospitals.*—Private charities also maintain convalescent hospitals for the poor. There exists in Paris a society for the care of convalescent children, which is carried on by the Sisters of St. Vincent de Paul, where are received in the convalescent home (located in Sèvres) poor children recovering from disease; there are received here also convalescent adults."

At the conclusion of his historical review of the subject of convalescence, Brochin summarized the other efforts in France then being directed toward care of convalescents. Thus, there were in Paris five private homes for convalescents, aside from the homes designed to care for women immediately after child-birth; also, there were accessible to the city two homes for

the children of Paris, one for boys and one for girls.

At Lyon, there was in operation a public convalescents' hospital for men, called the Hospital of Sainte Eugénie. This establishment, founded through the initiative and munificence of the Empress Eugénie, who gave the sum of 200,000 francs for the purchase of the Chateau of Longehene, was opened in 1867. It was situated six kilometers from Lyon. On recommendation of the physicians, poor convalescent patients leaving the Hotel Dieu and the Red Cross hospital could be taken there, when they so desired, in order to complete their recovery. The hospital itself contained 100 beds. The patients here had not only the pleasure of walking through the extensive and beautiful grounds, but were allowed to engage, according to the limits of their strength, in farming and other outdoor work. Medical care was provided by one physician, assisted by two interns.

The women of Lyon, convalescent from serious illness, were less fortunate than the men, since at this time there was no similar institution available for them. Consequently such care during convalescence as they received had to be provided entirely by private charity.

Note.—Since the preparation of the above article for publication, the writer had the opportunity in early September of visiting both Vincennes and Vesinet, the two great institutions for convalescents for the men and women of the city of Paris, to which Brochin refers above. Surprising as it may seem, it was impossible from the literature to verify even the continued existence of these hospitals. They were unknown outside of Paris, yet they had been in continuous and successful operation throughout the 56 years since their opening, until the onset of the War in 1914. Then, as had happened to convalescents' hospitals in previous centuries in Paris, their 1000 beds were converted to military purposes for the care of the acutely sick.

Since the war, funds have not been adequate to maintain both institutions. Inevitably, the men suffer. Vincennes is still closed, although its early reopening is eagerly anticipated by physicians of the hospitals of Paris, who had been accustomed to depend upon it for the better care of their poor patients during convalescence. But the women's hospital at Vesinet has for over two years been functioning again as a civil hospital for convalescents.

On the day of my visit to Vesinet, 250 of its 350 beds had been made available in the gradual process of renovation necessitated by military occupation. All the beds available were filled. In addition, about 50 mothers with infants were being cared for in the nursery wing, sent there direct from city maternity hospitals.

The system of after-care does not stop here, and the French do not consider their responsibility ended on discharge of a patient from

Vesinet, for at a city branch of this institution, otherwise homeless girls are received and cared for free for ten days, or until they are actually again placed at a new job. Here is in operation an example of intelligent municipal medical follow-up work which other cities less well provided for may well study with care.

The sensations experienced by the explorer who comes suddenly upon a lost city in the jungle can hardly exceed those experienced by the writer when coming suddenly upon the magnificent grounds and buildings provided with such admirable foresight by the French for their convalescent men and women at Vincennes and Vesinet, a complete equipment which for practical purposes has been lost to the world outside of Paris for more than a generation.

It seems almost incredible that Vincennes and Vesinet should so long have remained "lost." It is, however, a fact, and it demonstrates better than many words the present apathy of the world at large toward the subject of "Convalescence."

New England Hospital Association.

ANNUAL MEETING MAY 17 AND 18, 1922,
AT BOSTON MEDICAL LIBRARY.

(Continued from page 637)

Thursday, May 18, 1922.

Meeting called to order at 10:25, by Dr. Howland.

DR. HOWLAND: I think it would be well if we could have the proceedings of these meetings published. It is not always possible for superintendents and others interested to attend and hear the papers. I think the papers have been exceptionally good so far, and I feel that it would be worth while to publish them, in an inexpensive way, if we are in a financial condition to do so.

On motion made and seconded, it was voted to publish the proceedings of the meetings.

DR. HOWLAND: I think this is a wise decision, because we probably will go on, and it seems a good thing to have a complete transcript of the business of the Association, and not wake up half a dozen years hence and regret that we have not a complete record. I think we can do it, in an inexpensive way, for distribution to all the members.

Dr. Washburn, the Chairman of the Legislative Committee, was called away. He had made an appointment with the Pennsylvania Hospital Association, which is being organized, to read a paper, not realizing that it came on the day of our convention. Dr. Sexton of the Hartford Hospital, Connecticut, will report for the Legislative Committee.

DR. SEXTON: I have to report that there has been no meeting of the committee. The Association was organized after all the legislatures of the different states had closed for the year. We have a session in Connecticut every other year, and have had no session since our organization. For that reason, there has not been a meeting of the Legislative Committee.

The Chairman then called for the report of the Membership Committee, Dr. Bresnahan, Chairman.

No report.

No report from the Committee on Constitution and Rules, Dr. Dowling, Chairman.

DR. HOWLAND: The next item is the reading of a paper on "The Hospital Laundry," by Dr. Harold W. Hersey, of the New Haven Hospital.

THE HOSPITAL LAUNDRY.

BY HAROLD W. HERSEY, M.D., SUPERINTENDENT OF THE NEW HAVEN HOSPITAL.

IN no department of the hospital is adequate equipment, efficient organization and standardized routine more essential than in the hospital laundry. The various wards must be supplied at regular intervals with clean, soft fabrics, free from pathogenic bacteria and disagreeable odors. To insure the delivery of this supply, the laundry must run with clock-like precision.

This result is only possible with an efficient manager, competent employees, cooperation among the employees, definitely assigned duties, adequate wage, modern machinery, and a well-organized and standardized routine for putting through the day's work.

With the equipment now furnished by the various companies manufacturing laundry machinery, it is possible for even the smaller hospitals to conduct a laundry on an economical basis, and as some hospitals are able to install new equipment or to plan for new laundries, we will start our discussion at that point.

In planning the laundry it is desirable to construct a building detached from the main hospital. Frequently, however, the hospital plot is too small or the plans for future development are such that this type of structure is impossible.

It should be borne in mind that laundry employees work in a super-heated atmosphere, permeated with steam and the odors of various chemicals, and that every effort should be made to overcome these conditions by providing for the circulation of pure air, and the removal of the foul air.

The building should be of fireproof construction with concrete, water-proofed floors, and so placed as to allow the maximum of sunlight at all hours of the day. For this purpose the factory type of construction with abundant windows is excellent. The rooms should be high studded, at least 15 feet in height, and if possi-

ble should be provided with a monitor type of roof or skylights.

The general arrangement of the laundry should be such that the work proceeds systematically, step by step, from one point to another, care being taken that at no point do these steps cross.

There should be an ample receiving and sorting room so arranged that if goods are brought in from an infectious or contagious patient they may be given a sterilizing wash before entering the laundry proper. The average sterilizing washer is so constructed that goods may be put in at one side, and when sterilization is completed at a pressure of 15 pounds for 30 minutes, removed at the other side or the receiving room proper.

It is well to have all goods checked on entering the laundry at this point, the results compared with the accompanying laundry slip and any discrepancies noted and reported.

The goods should, after being classified, proceed through the various steps with which you are all familiar, the washers, extractors, driers and tumblers, mangles, and so on.

In the receiving room the incoming goods should be examined and properly marked. It is well on issuing new linens to have the date of issuance marked on the fabric, as it is frequently desirable to ascertain the length of wear of such material.

In arranging the laundry it must be remembered that many cumbersome laundry trucks must pass and repass each other and ample floor space must be allowed for the workers and the necessary trucks and hampers. No plant can be efficient if crowded.

There are several very excellent washers on the market and the various manufacturers of laundry equipment maintain consulting engineers who will gladly advise upon the size and number of machines required for the present needs and future development of the hospital.

Over each machine and over each area from which heat or steam arises, a hood should be placed connected with an exhaust fan. The more modern equipment is operated by individual motors, thus effecting an economy when the machines are idle and eliminating the annoyance of belt-driven machines.

The William Wirt Winchester Hospital at West Haven, now leased by the Public Health Service and known as the U. S. Veterans Hospital, No. 41, is an example of the more recently constructed hospital laundry. This laundry is approximately 60 feet square and contains:

- 2 Cascade Washers
- 2 Extractors
- 1 Tumbler
- 1 Venturi Tumbler
- 1 Hurricane Dryroom
- 1 Flat Work Ironer (4 roll Hagen type)
- 1 Bosom Press
- 2 Cuff Presses

- 2 Garment Presses
- 1 Yoke Press
- 1 Collar Ironer
- 1 Neck Band Machine
- 1 Rotary Edger
- 1 Seam Dampener
- 1 Spray Dampener
- 1 Combination Table
- 1 Starch Cooker
- 1 Shaper (hot tube)
- 1 Collar Shaper

The power-driven machines are propelled by industrial motors.

Between 450 and 500 patients are cared for besides the necessary hospital personnel. 101,919 pieces of laundry were handled last month and the laundry payroll contains 18 names.

The washing machines should not empty directly into the sewers but into suitable concrete drains in the floors. This allows the wash-man to see the color of the water as it is drawn from the machine and prevents an occasional piece of goods from being washed into the sewer. The floor drain should be provided with a suitable screen.

The washing of goods depends upon the rapid agitation in warm water and suds, in a revolving cylinder, so arranged that the goods are carried through the soapy water, permeated by this solution, lifted to the top of the cylinder and dropped forcibly into the water below. The machine then reverses its action and revolves an equal number of times in the opposite direction. It is claimed that the reversal of the cylinder helps the penetration of the washing fluids and keeps the goods from becoming badly tangled.

It is interesting to note that at several of the recent conferences of State Laundry Associations, the advantages of washing the goods in nets and so adjusting the machines that the reversing action is omitted, have been discussed. The claims made for this method are that it requires less time to complete the wash; that the nets prevent the clothes from becoming entangled, and that less power is required to carry the load in one direction than to stop and start in the opposite direction.

Many laundries are replacing the liquid soap formerly considered essential, by powdered soap, and if it is carefully measured and scattered over the cylinder with the proper proportion of soda, I believe it to be efficient. The advantages are the saving of steps, a more accurate knowledge of the amount of soap used, the elimination of one cause of a slippery floor with its dangers, and a small saving in steam.

In buying chipped soap those soaps in which the fatty acids are largely from tallow are the best for laundry use. Not more than 12 per cent. of moisture should be present. It is poor economy to buy water at the price of soap. The Laundry Owners National Association recommend the following procedure to obtain

a rough estimate of the moisture content of soap:

"Weigh out on scales about five to ten pounds of soap from the center of a freshly opened barrel, and place the soap, spread out on a tray, in the dry room, and leave for several hours. Then let the soap cool to room temperature and at once weigh again. The first weight minus the last weight, divided by the first weight and multiplied by 100, is the percentage of moisture. Example: Weigh out 10 pounds of chipped soap. After drying it is found to weigh 8 pounds and 8 ounces, or $8\frac{1}{2}$ pounds. Then: $10 - 8\frac{1}{2} \div 10 \times 100 = 15.0$ per cent."

We all know that in the washing process we are aided by the action of alkali and a soap, but do we know why we use alkali in this process?

An alkali when dissolved in water gives a solution with the following properties:

1. A brackish taste.
2. A soapy feel.
3. It turns red litmus blue.
4. It neutralizes an acid.

Soap is a product formed by the reaction of any base such as sodium, potassium or ammonium, with a fat. The three alkalies mentioned are soluble in water and are therefore of interest in the laundry industry.

Experimentally it has been found that solutions of soda ash, borax and other common alkalies will not wash lamp black, rouge and similar substances through a filter paper.

Soap solutions will wash these substances through the filter paper. Any of the alkalies will increase the amount of lamp black washed through the paper, and from the above it is seen that alkalies, while not detergent, greatly increase the detergent powers of soap solutions.

The reasons for using an alkali in washing clothes are, therefore:

- (1) to increase the detergent power of the soap.
- (2) to neutralize the acid substances found in some dirt on soiled linen.
- (3) to convert the greases present in soiled fabrics into soap and aid the detergent process.
- (4) to prevent the formation of a certain per cent. of lime soap in hard water, which causes the goods to feel gritty and frequently covers them with a sticky substance, imparting a grayish cast to the fabric.

The most suitable alkali for all around purposes is sodium carbonate, Na_2CO_3 , called soda ash.

An article by Dr. A. F. Shupp, Director of Chemical Engineering of the Laundry Owners National Association, appearing in the Laundry Journal of February, 1922, gives an interesting discussion of the action of soap and alkalies.

In washing it is customary to give a five minute breakdown in cold or lukewarm water

and soda to remove albuminous deposits, such as blood and perspiration and loose dirt. These albuminous deposits would be set by hot water. Tri-sodium phosphate is of value in removing blood stains.

In the different laundries different routine for washing may be found, dependent upon the type of goods to be washed and the amount they are soiled. Usually the cold rinse is followed by a hot suds bath for fifteen minutes in three inches of water, a hot water rinse in six inches of water, for fifteen minutes; a second bath in hot water, followed by a rinse, and in many cases bleach is used at this point when necessary, followed by the sour and sufficient rinsing. Neither too much water nor too much soap should be used. The clothes are more thoroughly cleansed in a shorter period in three inches of water than in six inches. In a 36"x64" washer, for example, thirty-three more gallons of water would be required when washing with eight inches of water than in washing with three inches of water, and three pounds more soap would be used.

From experiments carried on by the government, it appears that it is seldom necessary to employ a temperature higher than 140°F. maintained for ten to fifteen minutes to destroy pathogenic non-spore bearing bacteria. For example, the thermal death point of streptococcus was found to be 131°F., maintained for 10 minutes; micrococcus was found to be 140°F., maintained for 10 minutes; bacterium diptheriae was found to be 140°F., maintained for 10 minutes; bacterium influenzae was found to be 140°F., maintained for 15 minutes. It was found that the effect of a temperature of 158°F., maintained for 5 minutes was the equivalent of 140°F., maintained for 30 minutes. Spore-bearing bacteria require boiling temperature for varying periods. It would seem, therefore, that as far as destroying the bacteria commonly encountered it is unnecessary to exceed a temperature of 180°F., which temperature will not injure fabrics.

To ensure the best results and allow standardization of work, each washing machine should be provided with an accurate thermometer, proper valves, and there should be a clock in a conspicuous place on the wall.

Many goods coming to the laundry are badly stained and require a bleach, and while it is not necessary to use a bleach as a routine, it should be used when necessary, and does little harm if used with consideration. The most common bleach is sodium hypochlorite or Javelle water.

After a thorough rinse a sour must be used to neutralize the alkali. Acetic acid is one of the best and the least harmful.

Time does not permit a further discussion of laundry procedure. It may be of interest to state that many of the tumblers are now provided with fresh air intakes, which impart a certain amount of freshness to the dried goods.

The body ironers are being replaced to a large

extent by presses. For economical work these should be arranged tandem. A recent device now in use at the laundry of the Pennsylvania Hotel in New York, one of the largest hotel laundries in the country, and equipped to handle 20 tons of linen daily, is the Universal flat work folder, which may be attached to the regular roller ironer and used for folding flat work. The turbine-driven extractor is also of interest.

Accurate records of laundry output should be kept and not only the daily and weekly results noted, but the supplies consumed and the weekly expense should be analyzed. Some hospitals compute the earnings of the laundry in terms of the charges made by the commercial laundry, but this does not appear to be entirely satisfactory.

A careful laundry manager will find many ways in which economies may be effected. Goods should never be thrown on the floor as the fibers are easily injured by the wheels of laundry baskets passing over them, or by the heels of the employees. Leaks from water and steam pipes should be controlled. Sharp corners on baskets, broken hinges on washers and tumblers, and loose covers on the cylinders of the washers may subject the linens to damage of tearing, and should be speedily repaired. The strong arm washer should not be countenanced.

It is well to observe frequently the activities in parallel lines of work, as for example the activities of the men interested in the commercial laundries. These men are a keen and progressive group of business men, and are raising the laundry industry to a high standard of efficiency.

The following illustrations are given. In the majority of the states the laundry owners have formed the State Laundry Associations, which hold enthusiastic conventions. Anyone interested in the laundry industry is welcomed at these meetings.

There is also a Laundry Owners National Association with associate membership open to hospital representatives. This Association maintains an industrial fellowship at the Mellon Institute of Industrial Research, of the University of Pittsburg, in order to promote investigation of laundry problems. The Association now proposes the formation of an American Institute of Laundry Industry to provide a training for laundry managers, and to promote research in laundry problems.

There are several excellent publications dealing with the laundry, and these should be available to those in charge of hospital laundries.

In Massachusetts the laundry owners have interested the manufacturers of textiles in a co-operative movement to standardize fabrics and their manufacture. This movement is of interest to us for, should it accomplish its purpose, it will guarantee to a purchaser textiles of a standard quality, thus insuring a longer life for fabrics passing through the laundry.

I wish to acknowledge the assistance of the Hospital Library and Service Bureau of Chicago in the preparation of this paper. An extensive bibliography was furnished me by the secretary, and numerous articles on hospital laundries. I especially mention articles by Walter Trimble of Chicago. I would recommend to you for careful study a pamphlet published by the Laundry Owners National Association, called "A Manual of Standard Practice for the Power Laundry Washroom."

To summarize, it may be stated that the hospital laundry presents a problem whose satisfactory solution calls for efficient organization of the laundry personnel, standardization of labor, a definite schedule, accurate records, and efficient management, thus developing maximum results and minimum expenditure.

DR. HOWLAND: Dr. Hersey's most interesting and helpful paper is open for discussion. I am sure that no more practical paper could be presented than this on the subject of the Laundry.

Question: How do you handle the clothing of patients with contagious diseases?

DR. RICHARDSON: At the Providence Hospital we have never used a sterilizing washer, and I might say that, so far as we are able to ascertain, —and we have investigated a little,—no child has ever got a contagious disease from laundry sent back. Of course, if washing is done, as it is usually done in a commercial laundry, at a low temperature, say 40° or 50°, the chance of killing organisms is not great. While they might be got rid of mechanically, they will not be killed at that temperature. But as done in most hospital laundries, I think ordinary washing is sufficient. We experimented, putting clothes in a perforated receptacle in the centre of the laundry, and we found that those organisms, streptococcus, typhoid, and staphylococcus were practically all killed. We used from 30 to 60 minutes in washing, and most of the time the water was at a pretty high temperature. I also checked up the temperature of the water, and found that it averaged from 90° to 95°. I don't think it is necessary for any hospital to have a sterilizing machine. The objections are that they are more expensive; it is more work to do the washing in this manner, and the hot sterilizing water sets the stains in the clothes. I visited a good many hospital laundries, some of them contagious hospitals, and the linen was pretty black. It can't be avoided, if such high temperatures are maintained. Our linen is white, and compares favorably with any general hospital, because we do not use a sterilizing washer. This is of particular interest to small hospitals that can ill afford expensive sterilizing washing. From our own experience, I can confidently say that if the temperature of the water

during the washing process is 90° or 95°, that for practical purposes is sufficient. The only danger is in handling the laundry from the time it leaves the ward until it is actually deposited in the wash. We have clothes chutes. There is a door in the wall in the middle of the ward, with a little contrivance with spring hinges, so that the door can be opened with the forearm; the hands don't have to touch it. The linen from the beds, or towels, or other articles, are thrown into this chute, and fall into a canvas bag at the bottom of the chute. The chute is lined with galvanized iron, which has been painted. A great many hospitals have spent a lot of money on very elaborate clothes chutes. I saw one in Chicago that cost as much as a small hospital, which I don't think is at all necessary. We have washed these clothes chutes for a certain distance,—what can be done from the door, and they are not foul. Very soiled pieces are washed before they are thrown into the chute. The laundryman collects these bags on an ordinary barrel truck. He wears a gown and a pair of washable gloves, and whenever he wants to open a door or pull the elevator rope, he slips off one of the gloves. The laundry is put in front of the washer. He takes it out of the bag and puts it into the wash box. Such pieces as colored pieces and blankets we throw into barrels. He then throws his gown and his gloves right into the washer and proceeds to wash in the usual manner. It isn't difficult to get any intelligent fellow to do it, and to do it carefully. The danger from laundry has been exaggerated, anyway. Of course, it is theoretically possible to spread disease in that way. In twelve years I think we have had one laundry-maid get scarlet fever; I think that is all we ever had.

DR. SEXTON: We have had a good deal of trouble in ventilating our laundry. When I first went there, we put in patent ventilators. Up to that time, they had depended on windows for ventilation. We put in a patent ventilator to every 500 feet of floor space, and tried it for a couple of years; but notwithstanding their guaranty that condensation would not form and fall back on the floor, it occurred with every one of those ventilators. Then we took those all out, and put in a central ventilator shaft in our wash-room and ironing-room, 10 feet square, going up through. In the wash-room we converted it into a skylight, which gave us additional light, and at the same time all the ventilation area that was necessary. In the ironing-room we had to go up through two additional floors, so that rendered the making of that particular ventilating shaft into a skylight impracticable. We find these shafts have solved our problem of ventilation. Our laundry employees suffered intensely prior to the installation of these shafts, but now they are very comfortable on the hottest days we have. An advantage of

this method over patent ventilation is that it can be built by any ordinary hospital.

MISS COLEMAN, Good Samaritan Hospital: We wash the household linen and other linen at different times. We use the same wash-room; but they are not put in together.

DR. BAKER: I suppose we are all interested in the expense of maintaining a hospital, and in keeping the running expenses down. One way is to avoid waste and to avoid destruction. Starting with the laundry, I suppose certain destruction is due to our buying poor material, poor linen. We are not careful enough in selecting linen that will stand the wear and tear. Sometimes I think we buy too good linen. For illustration, take the heavy cotton huckaback towel; the average nurse is certainly wasteful; the huckaback towel is unwieldy to handle, and she starts to use it, casts it aside and takes a lighter one; it is easier to wipe dry with a light, pliable towel than with a heavy one. That means more labor and expense. Another thing I have found that costs some money is in bleaching. If particles of free chlorine get on the clothes directly, it leaves holes. That means destruction of your fabric. This comes from not carefully stirring it up or dissolving it. Another very common way of destruction is by the strong arm, the man hauling clothes out of the washer. We ought to be careful, also, about the padding on the mangle. Sometimes the padding is put there, and not changed, and gets worn, and that often means tearing of the fabrics. Another saving that I have found is in the sewing machine. Many of us maintain just an ordinary Singer machine, run possibly by a motor, for repairing the clothing from the laundry. The Singer people put out a heavier machine, which is much faster, and has a darning attachment which is very rapid, and will darn holes of from three to five inches in less time than one can patch them. In this matter of saving, I should like to have more small points brought out.

DR. HERSEY: Part of the cause of holes in linen which are found at different times, has been discovered to be due to the medicine glasses and solution glasses, sometimes put on tables by the bedside. Sometimes antiseptic solutions and sterilizing solutions are used, and some of the acids in those solutions frequently get on to the bed, which makes a hole. Then the clothing goes to the laundry and gives way, and some of the damage done in the wards is credited to the laundry. Along the same line, it has been found that if the hinges of covers on washing machines are not kept tight, some of the clothes get through the opening in the covers, and are pulled as the laundry revolves around, and some holes are due to that cause.

MR. STEVENS: I should like to ask Dr. Hersey whether, in his opinion, the linen supply room

and the clean linen room, where the linen is brought from the laundry, should work together, or whether that room might be one room, from which all linen should be issued—whether it should be direct from the laundry, or direct from the supply room?

DR. HERSEY: For the distribution of the laundry, it would seem to be better to have a separate room. In one hospital I know the linen is all marked by the number of the ward. The routine in that hospital is to send down the linen to be sorted, and then the same amount of linen as comes down from the ward is returned to the ward, and the ward itself checks out the linen. In many hospitals, another method of distribution is used. The linen comes from the ward without any special mark; this is checked up and upon receiving the checked laundry list the person who brought the linen down goes to the linen room, and is reimbursed with new linen, issued from the central supply room. This is more satisfactory; it insures quicker delivery and prevents the head nurse from borrowing from different wards linen to make up accounts.

DR. PORTER: Does Dr. Richardson find it necessary to have a metal body washer? or is a wooden body suitable?

DR. RICHARDSON: We had wood in the beginning, and changed more as a matter of economy. The cylinder is brass, which lasts almost indefinitely.

DR. PORTER: Where you have metal inside the body, is it entirely satisfactory to have the outside wood?

DR. RICHARDSON: We had a wooden washer put in in the beginning, but the wooden cylinders gave out frequently; so as a matter of economy, we put in brass cylinders.

DR. HOWLAND: We might well take a lesson from this paper on Laundries to see whether laundries are properly lighted. Mr. Hixon made it clear that we can't have good work unless workers can see what they are doing. There is a type of reflector painted white inside that you can put inside of a high-power nitrogen lamp, which can be concealed by a little reflector that clamps on to the under side of the lamp, and gives a perfectly surprising distribution of intense light. It costs a few dollars only.

One great source of loss is not the strong arm only in washing, but in packing the extractor. The man throws in the clothes haphazardly across the extractor, and then more on top, criss-cross. Articles should be rolled up into a small mass and packed in around the edges and toward the center, so that when they are taken out they are not in a snarl. At the Brigham Hospital, when a new man is put on to the extractors, he

is given instruction by the engineer. We don't always escape torn linen, however.

DR. RICHARDSON: We have had cones put inside the extractors so that the lines won't stretch across the side. I don't know whether it has done any good or not.

DR. HOWLAND: I should like to ask if anyone has found a marking ink that can be used to mark linen—by which I mean flax, not cotton—and will be permanent. We have a National Marking Machine, and we have used all the various inks, but we can't find anything that will stay in linen. We have to use silver ink and mark by hand. The ink stays black for a long time in cottons.

No reply.

DR. FAXON: I should like to ask what results are obtained by those who use soap and water alone, and those who use soap and water and bleaches and the like. We have been trying for the last year, at the Massachusetts General, using nothing but soap and water on our clothes. Although I can't say that they are absolutely perfect, I think we get a reasonably good color, and certainly we don't incur the danger that comes with bleaches. Neither do we use any addition of soda.

DR. BAKER: Does Dr. Faxon mean soft soap?

DR. FAXON: We make our own soft soap, using grease from the kitchen, and cooking it in the usual manner. We have the chemist test it occasionally, to see that the man who is doing it is not getting careless, and is following the formula.

DR. BAKER: Will soap take out blood? Isn't it almost necessary to use a soda wash in order to get results?

DR. FAXON: After reading laundry pamphlets and talking with people, it seems as if we were doing something nobody else was doing; yet we seem to get satisfactory results. I think our linen is as good as could be expected. Of course, some clothes are stained.

DR. BAKER: Isn't that due to the fact that you add an excess of caustic in the soap solution?

DR. FAXON: No; the soap tests out what would be called neutral soap.

DR. BAKER: It is contrary to all blood chemistry.

DR. FAXON: I can't find anyone who thinks that it can be done. But the chemist makes an examination of the soap and reports a neutral soap, with no excess of alkali. The person in charge of the laundry has no soda, so that I

know no soda is used, and there is no Javelle water in the laundry. Yet we have linen that we don't get complaints about. We use quite a number of rinses, but I think no more than the ordinary laundry is using.

DR. HOWLAND: At the Brigham Hospital, we have a similar practice, but I think our soft soap has a considerable amount of alkali in it. It seems to us that our linen wears very well. I saw recently some pillow-cases stamped 1916, though I see plenty of things with a more recent date. We don't think that a soft soap, made from laundry grease and sodium hydrate, with a considerable amount of alkali, is bad. It is economy to use your kitchen greases and to make your own soap. In many hospitals it can be arranged to have the soap tank connected by an ordinary pump which will deliver close to the tubs. It is no work to step to the pump close to the tub and pump out soap. I should say that our soft soap had something like 8 per cent. free alkali. The linen certainly is white. No bleaches are used.

DR. FAXON: I believe a neutral soap is defined as containing a small amount of alkali, so that when you say "neutral soap," you have a leeway of several points.

DR. HOWLAND: Recently we have tested some hard soap for toilet purposes, and it showed about one-half of one per cent. alkali.

DR. BAKER: Is there anyone here who knows about the average life of the average piece of hospital linen, a sheet, pillow-case, or towel; how long should we expect it to live?

Ans. I think it depends on the actual use to which the linen is put. We expect to replace sheets after they have been in constant use three years.

(To be continued.)

Book Review.

Kurzer Leitfaden der Psychiatrie. By DR. PH. JOLLY. 2nd Edition. Pp. 264. Bonn: A. Marcus and E. Webers. 1922.

This small volume on general and specific psychiatry follows in the main the Kraepelinian classification. It is sufficiently condensed to be of value for the student and general practitioner and states in a brief form the recent psychiatric developments. The book is an excellent one for its purpose.

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CANCER WEEK.

ALTHOUGH medical records go back over six thousand years, the actual cause of cancer is as little known to-day as it was then, though cancer now exacts a toll of one person out of every ten of those over forty years of age. To prevent disease some knowledge of its cause is implied and of the cause of cancer we are still ignorant. As Americans we have been criticized for our apparent apathy and indifference to matters of health and disease. A large part of this attitude is due to ignorance; ignorance on the part of the public of the early symptoms of disease and of the fatal result which follows when these early symptoms are neglected, and ignorance on the part of the medical profession of the vital importance of early diagnosis and prompt treatment.

The recognition of the immensity of the cancer problem developed a demand for concentrated effort, it demanded organization, cooperation, the collection of accurate data in regard to this disease and the elimination of statistical errors. The American Society for the Control of Cancer has drawn upon the best resources of the country: physicians, laymen, hospitals and medical school facilities. It is organized with state, county and local committees which are engaged in fighting this disease by a campaign of education. In "Cancer Week"

of 1921 it is estimated that ten million people were reached in one way or another with accurate and authorized information in regard to cancer. Such a campaign of health education had never before been attempted; but its success has encouraged the officers of the Society to undertake another "Cancer Week," which will come November 12-18, 1922.

During "Cancer Week" information in regard to cancer will be made available to everyone who may be interested, the signs and symptoms of early and curable cancer will be published, and on the least suspicion of these danger signals the layman is urged to consult immediately the medical advisor in whom he has confidence, his family physician. The medical profession must aid in this dissemination of information and, with this in view, literature dealing with the diagnosis and treatment of cancer in its different situations has been prepared together with numerous clinics, demonstrations and lectures on cancer in the hospitals all over the state.

Early cancer is curable. Late cancer, whether due to ignorance and neglect of the patient or of his physician, can never be cured. Careful and complete histories, and thorough and painstaking physical examinations by the physician first consulted, will help materially to wipe out the disease.

THE ANNUAL TUBERCULOSIS INSTITUTE FOR PHYSICIANS.

OCTOBER 5th and 6th, at the Massachusetts General Hospital, the Boston Tuberculosis Association held its second annual Tuberculosis Institute for Physicians. The first meeting last year was in the nature of an experiment. It proved so successful, however, and seemed to fill a much needed want that it was determined to make it an annual event.

Last year Dr. Lawrason Brown of Saranac Lake and Dr. James A. Miller of New York City, men of international prominence in the tuberculosis campaign, were the two speakers from outside of Boston and this year two men, equally well known, presented scholarly addresses. Dr. Allen K. Krause of Johns Hopkins Medical School, Baltimore, and Dr. H. R. M. Landis of Philadelphia represent all that is best in tuberculosis work.

In addition to this, Dr. Richard C. Cabot of Boston, discussing the "Relation between Physician and Patient in Tuberculosis Work," took up the human side of the subject which is too often neglected nowadays, particularly by the younger men in their search for pure science.

Dr. George B. Magrath, the medical examiner of the City of Boston, in picturesque but in an eminently practical and optimistic vein discussed the pathology of the disease.

Dr. Francis X. Mahoney, Health Commissioner of our city, described the problem from the point of view of the Health Department of the City of Boston.

Dr. Sumner Renick, chief of the Division of Tuberculosis, State House, gave a most valuable talk, illustrated with lantern slides, on the part played by Massachusetts in her care of tuberculosis.

Dr. Cleaveland Floyd discussed the laboratory aids in diagnosis, while Dr. William H. Smith and Dr. Oscar Richardson gave a most valuable and interesting talk on the pathological and clinical relations of the disease.

Dr. Randall Clifford described the work at the new Preventorium for children recently opened by the Boston Tuberculosis Association, and Dr. John B. Hawes, 2nd, and Dr. George Holmes repeated their exercise of last year on the inter-relations between x-ray and the clinical findings in tuberculosis.

A new feature of the Institute this year was a clinic at the North Reading State Sanatorium attended by over 100 physicians. Here after a most valuable address by Dr. E. O. Otis, President of the Massachusetts Tuberculosis League, on the diagnosis of tuberculosis, various well-known experts demonstrated actual patients to small groups of doctors.

In addition to the physicians who attended, there were many nurses and social workers. A welcome, pleasant and not unimportant feature of the Institute was the lunch held on the hospital grounds on the first day and at the North Reading State Sanatorium on the second day.

The Boston Tuberculosis Association feels that the five or six hundred dollars expended last year and again this year for this Institute is money which could not be spent for any better purpose. We agree with the Association in this. We feel that this method of instruction whereby the latest facts in diagnosis, treatment and the general handling of such a disease as tuberculosis are brought home to general practitioners—men who actually come in contact with consumption, particularly in its early stages—might well be applied to other conditions such as the infectious diseases of childhood, genito-urinary problems such as syphilis and gonorrhea, heart disease and others. The Boston Tuberculosis Association in opening its Preventorium for children and in instituting this form of concentrated instruction for physicians and nurses has done valuable work for the health and good of the City of Boston.

REHABILITATION. AN IMPORTANT MEETING.

SOON after the beginning of the war large numbers of men were invalidated back from the front suffering from "Shell Shock." After the United States entered the war and began to

train men in large numbers in the camps, it was found that many men were suffering from "Shell Shock" who had never been under fire or near a shell of any kind. Now it is recognized as never before that many men and women engaged in ordinary industrial life are "Shell Shocked."

In other words, whether there is or is not true "Shell Shock," there is no question but that a great number of individuals, taken away from their home environment and subjected to the strains of military or industrial life, break down under the new conditions to a greater or less extent.

One of the benefits which has resulted from the suffering caused by the war is the greater attention now paid to this class of individuals.

Among the soldiers who have done their bit and have broken under the strain, the problem is one of restoration to health. Among those who have broken down under the strain of industrial life the problem is similar. In the one case the Commonwealth compelled the sacrifice and therefore owes an unquestionable duty. In the other the force of circumstances, usually beyond his control, pushed the individual into a trap from which escape was difficult. The duty of the Commonwealth is not so imperative, but the public good calls not only for the restoration to usefulness of the individual who has suffered, but for the correction of the conditions which caused his fall.

In the solution of these great questions the medical profession must play an important part. The multiplicity of the problems to be met is indicated in the program arranged by Dr. Hilbert F. Day for the General Meeting to be held on the evening of November 22nd at the Boston Medical Library. Preventive Surgical Measures, the Medical and Mental Aspects, the Legal and Industrial Aspects, Occupational and Physiotherapy, and the Care of the Derelicts in our State Institutions are among the topics to be discussed in a series of ten-minute papers by a remarkably able and qualified group of speakers.

Those who wish to see improvement in our Industrial Accident Laws ought to hear what the Chairman of the Board and Mr. Joseph A. Parks have to say. Those who feel that the Commonwealth must do the best possible thing for its derelicts will welcome the suggestions of Dr. John H. Nichols, the head of the great State Hospital at Tewksbury. The presentation of those aspects which more intimately concern the practicing physician and surgeon cannot fail to be of interest to all.

We are face to face with a vast problem, the intricacies of which are just now becoming clear to the public. In the old days on the farm the subnormal individual found a useful place. In modern city life the place has not yet been found. Physicians must help to find it. A civili-

zation which permits the continued breakdown of so many of its citizens is seriously at fault. A large audience should hear the speakers and take part in the discussion. All physicians, whether or not members of the Suffolk District, will be welcomed.

DIPHtheria SEASON WITH US.

DIPHtheria, a year round disease, is, however, much more prevalent during the autumn and early winter months. It has been hoped that with the discovery of antitoxin, which is a specific for the cure of this disease, that its morbidity and mortality will reach the lowest level. Unfortunately, it is not so. For the last decade there has hardly been a noticeable reduction in the number of cases of diphtheria in Boston, as well as throughout the United States, and even the mortality has not been as low as was to be expected.

Deaths from diphtheria are due to two causes: first, failure to call a physician until it is too late to administer proper treatment; second, failure of the physician in making the proper and prompt diagnosis and applying the proper treatment, namely, administering antitoxin and in large enough doses.

As for the first, the medical profession cannot be blamed, but there should be instituted a campaign of education among the laity urging the necessity of proper medical advice in all cases of sore throat, even of the slightest form.

As for the second cause, it is entirely up to the physician. All sore throats, or chronic discharges from noses, especially of the bleeding type, should be cultured and said cultures forwarded to a reliable bacteriological laboratory for a proper diagnosis. Typical clinical cases of diphtheria, or suspicious cases, should be treated immediately by the administration of liberal doses of antitoxin, 5000 units to be the minimum, but there should be no hesitancy in giving much larger doses, even as high as 50,000 units in severe cases, and the dosage repeated within twelve hours if the patient does not show marked improvement. Waiting for laboratory findings before the administration of antitoxin in such cases is absolute folly, if not criminal negligence. There is absolutely no harm in giving the patient who is not suffering from diphtheria, antitoxin, for the worst that may happen may be articularia, which is temporary and harmless; but the failure in the administration of antitoxin, or even in the delay of its administration, may lead to very dire results.

Physicians are, therefore, urged to bear the following points in mind with regard to diphtheria:

1. Urge everybody to be Schick tested so as to determine if they are or are not susceptible to diphtheria.
 2. See to it that all susceptible cases of diphtheria are immunized against the disease by means of toxin-antitoxin inoculations.
 3. Culture of all inflamed throats or chronic discharging noses to rule out diphtheria.
 4. All clinical or suspicious cases of diphtheria should be treated immediately with antitoxin in proper amounts.
- Do not wait for laboratory report in such cases.*
5. Immunize temporarily all possible susceptibles in the household where you have a case of diphtheria, by the administration of immunizing doses of antitoxin.

AN OUTRAGEOUS ADVERTISEMENT.

THE manufacturers of a preparation under the trade name of Zonite have been carrying on an advertising campaign in the daily papers. This compound purports to be a perfected Carrel-Dakin Solution. In the advertisement the claim is made that practically all of the standard antiseptic drugs were comparatively useless as applied to war wounds and exaggerated statements are made of the impotence of surgery before the use of the Carrel-Dakin Solution. The claims made seem to ignore all of the other well-known and efficient means at our disposal for the prevention of the lethal effects of infections. For example, no credit is given to the antitetanic serum, but on the other hand, the advertisement sets forth that Zonite will not only overcome a very large proportion of all forms of sepsis, but may also be used in the treatment of colds, sore throat, diphtheria, pneumonia and the various germ infections.

This remedy is advertised especially for use by the laity, and it is common knowledge that the untrained person is not using good judgment in adopting advertised remedies. Whether this preparation is really a perfected form of the Carrel-Dakin Solution will be known in due time. Furthermore, the original Carrel-Dakin Solution proved beneficial only in certain types of infectious processes and only then when applied with intelligent regard for the principles enunciated by the discoverers. To follow out these principles a special technique was required without careful attention to which good results could not be expected. It would be absurd to suppose that an untrained layman could make intelligent use of such a remedy.

The claims made for this solution are extravagant beyond reason and therefore warrant condemnation. The public should be repeatedly informed that only physicians should be en-

trusted with the responsibility of recommending the treatment of medical and surgical diseases. If the owners believe that it has value it should have been submitted to expert study and thereby have secured its proper place among useful remedies. At present it is in the discredited category of proprietary preparations.

The most serious aspect of advertisements of this kind is that those who heed them and make use of the remedy may be lulled into a false sense of security until the infectious process for which the remedy was applied has advanced to a stage threatening life itself. Diphtheria is amenable to treatment only in the early stage; the same is often true of sepsis. False teaching in these matters, if accepted, must inevitably lead to needless loss of life.

THE INVASION OF MEDICAL PRACTICE BY ILLOGICAL THEORISTS.

OUR sympathy goes out to our New Hampshire brethren because of the shrewd propaganda now being staged by the chiropractors. Under the heading "Instructive, Illuminating, Convincing" half-page advertising is appearing in local papers in our sister State, together with the picture of a handsome masculine person who is spoken of as "the most eloquent exponent of the principles of chiropractic in the world." He speaks of this system as the "Greatest Discovery of the Nineteenth Century."

Perhaps, after the custom of politicians, Abrams may challenge him to a joint debate to settle the question of greatness, for Abrams contends that he is the exponent of the greatest discovery—or the greatest fraud.

The literature of both of these men have some common attributes and seem to be copied, in style at least, from the methods of the circus side-show orators who descend on the marvelous freaks under the canvas. In New Hampshire they have the alluring influence of music in the stage setting.

An illustration of the benefit of chiropractic and the source of the original inspiration is said to have existed in the person of a man who heard a crack in his back which was immediately followed by deafness. Palmer adjusted a lump, heard it crack again and the patient regained his hearing. The lecturer claims that there are 15,000 practitioners in the United States and Canada, and the organization is the second largest health (*sic*) organization in the world and is recognized in 21 States.

Our sympathy for the neighboring State may be tintured with fear of our own downfall, and it may be that New Hampshire is indulging in a sly chuckle over the success of Abrams in inducing practitioners in Boston to accept his theory, and apply his methods.

News Notes.

ROXBURY HOSPITAL.—The Roxbury Hospital at 87 Vernon street was reopened on October 9th. This hospital of fifty beds is one of the Salvation Army institutions. The care of patients has been turned over to Tufts College for teaching purposes and the staff consists of members of the teaching staff of Tufts Medical and Dental Schools. The clinics on Medicine and Surgery are held daily; in Gynecology: Monday, Wednesday and Friday; in Orthopedics, Pediatrics and Ear, Nose and Throat on Tuesday, Thursday and Saturday. The dental clinic is held daily. In addition to the ward beds, which are made use of for teaching purposes, there are a number of private and semi-private rooms.

BOSTON MEN PRESENT PAPERS BEFORE THE NEW YORK ACADEMY OF MEDICINE.—On Oct. 17, 1922, Dr. Reginald Fitz read a paper before the Section of Medicine under the title "Clinical Observations on the Chemical Composition of the Bile," and on Oct. 20 Dr. James Warren Sever read a paper before the Section of Orthopedic Surgery under the title "Treatment of Obstetrical Paralysis."

DEATH RATE IN BOSTON.—During the week ending October 28, 1922, the number of deaths reported was 223, against 191 last year, with a rate of 15.22. There were 36 deaths under one year of age, against 22 last year. The number of cases of principal reportable diseases were: Diphtheria, 52; scarlet fever, 28; measles, 41; whooping cough, 40; typhoid fever, 1; tuberculosis, 32. Included in the above, were the following cases of non-residents: Diphtheria, 4; scarlet fever, 8; whooping cough, 1; tuberculosis, 3. Total deaths from these diseases were: Diphtheria, 5; measles, 2; whooping cough, 5; tuberculosis, 13. Included in the above, were the following cases of non-residents: Tuberculosis, 2.

Dr. James J. Putnam has moved his office to 494 Washington Street, Dedham.

BRISTOL SOUTH DISTRICT MEDICAL SOCIETY.—The semi-annual meeting was held at Odd Fellows' Hall, 141 Rock Street, Fall River, on Thursday, November 2, 1922, at 5 P. M. Reader, Dr. Frank H. Lahey of Boston. Subject, "Clinical Notes on the Diagnosis and Treatment of Gall-Bladder Disease."

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about three hundred dollars, will be made on July 14,

1923, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in Medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the Secretary of the College on or before May 1, 1923.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

NOTES FROM "SCIENCE."—*Science* reports that Dr. Hugh S. Cumming, surgeon general of the United States Public Health Service, sailed on October 5 for Europe to spend two weeks inspecting the government's sanitary stations abroad. While in France, General Cumming will also attend the convention at Paris which is to revise the international sanitary treaty of Rome, where he will present several amendments concerning international measures against typhus, the plague and cholera. He will attend, in addition, the meeting in Paris of the hygiene unit of the League of Nations.

DR. DAVID STARR JORDAN has sailed for Japan. He expects to return to Stanford University in December.

THE LAWRENCE MEDICAL CLUB.—The monthly meeting of the club, which was also the annual meeting, was held on Monday evening, October 23, with Dr. Merrill, at Y. M. C. A. Hall. Chairman for the evening was Dr. Murphy. Subject: "Recent Advances in Diagnosis and Treatment of Heart Disorders," by Dr. Burton Hamilton of Boston.

THE AMERICAN RED CROSS—BOSTON METROPOLITAN CHAPTER—SIXTH ANNUAL ROLL CALL.

On the basis of an essential peace-time service not duplicated by any other social agency, the Boston Metropolitan Chapter of the American Red Cross will seek to re-enlist, on Red Cross Sunday, November 12th, the 300,000 members who supported the organization during the war. Administration has been adjusted to the minimum of efficiency. Every department has been carefully studied, every unnecessary function eliminated.

The main issue of last year's Roll Call—the disabled veteran—is again the main issue of this one. Its importance has merely increased. The peak of the veteran's disability is not yet in sight. Acting, in a sense, as his attorney, the Chapter helps to establish his claim upon the Government. During the process, which is usually involved and always lengthy, the Chapter provides for him and his family a constructive, human and neighborly service that the Government is not equipped to render. This year an average of 1,351 such families was assisted monthly. The war is by no means over for the men who fought it.

Other functions of the Chapter are but relatively less important.

Draft figures, showing 50% of the men examined unfit for duty, made a startling "Stop, Look and Listen" sign on the national highway. The Red Cross heeded the sign. As one of its prime activities in time of peace, it is promoting health through educational and preventive work; assisting communities to establish and maintain health centers, with clinics for infants, children and adults; conducting classes in home hygiene and care of the sick, and life saving. This year 266 persons took first aid instructions; 1180 enrolled in hygiene classes; 204 passed life saving tests.

Through the Volunteer Motor Corps the Red Cross serves those who are ill and in need of transportation to the hospital clinic. Victims of infantile paralysis, children and adults needing hospital care, but not able to travel in street cars or pay for transportation, are conveyed regularly for treatment. More than 5000 invalid soldiers, old people and infantile paralysis patients were transported this year, 35,000 miles being covered in this work. The Chapter also maintains an ambulance, driven by volunteers. This year it responded to 1372 calls.

Volunteers prepared for the Chapter 94 manuscripts, containing more than 4400 pages in Braille—a system of raised letters for the blind. These are sent to the Library of Congress, where they are bound into volumes, and thence to the Evergreen School for the Blind, at Baltimore, for the instruction of the ex-service men.

The Production Department shipped 64,406 garments to refugees overseas. More than 1,157,000 garments have been shipped overseas since August, 1914.

About 70,000 toys, articles of clothing, scrap books and the like were sent to European children by the 130,000 members of the Chapter's Junior Red Cross—not as a charity, incidentally, but as a friendly exchange, for many beautiful and curious gifts, made by the children abroad, were returned. This service is organized through the schools—public, private, parochial—300 of them. Forty-two of these schools are corresponding, via the organization, with schools in

19 foreign countries. The motto of the Juniors is "I Serve." And they do—the ill and handicapped at home as well as their fellows abroad. Who can tell how far-reaching in the promotion of that international understanding and good fellowship—which can alone prevent future wars—this movement to make comrades of the world's children may prove to be?

How many people in New England realize that the Boston Metropolitan Chapter maintains a fully equipped Disaster and Canteen Service, ready for immediate action, with a 100-bed hospital, medical and nursing corps, in the event of a calamity too great for the municipal authorities to handle.

The Chapter has its fingers on the pulse not only of the community, but of a suffering world. It is a mistake to regard the Red Cross as merely a battlefield organization. The disabled veteran, the disaster-stricken, the sick, "the lame, halt and blind," the children of devastated Europe and the children of America, who would like to be shown how to help them—all need "mothering in peace as well as in war." "The Greatest Mother in The World" is a full-time mother—always alert, ready to serve and continuously on her job.

AN EMERGENT APPEAL FOR GARMENTS.

The American Red Cross is launched upon another great international emergency relief operation.

Driven from Asia Minor by the fortunes of war, some half-million refugees have fled for safety to the shores of Southern Europe and the Aegean Islands. They are penniless, homeless, terror-stricken.

The obligation of the Red Cross to meet this crisis brings to members and Chapters a new opportunity for practical service.

Large quantities of garments are needed, which must be prepared with all possible speed; the same type of garments which the Chapters produced for women and children both during and since the war; warm, simple, serviceable clothing, new and second-hand; warm stockings and strong low-heeled shoes. The clothing, if not new, should be cleaned and mended before sending, and the shoes should be in good repair and *tied together in pairs*.

REPORT OF THE DELEGATION OF THE MASSACHUSETTS MEDICAL SOCIETY TO THE ANNUAL MEETING OF THE VERMONT STATE MEDICAL SOCIETY.

Pittsfield, Mass., October 18, 1922.

To Dr. Walter L. Burrage, Secretary of the Massachusetts Medical Society:

In response to the honor conferred upon me by the Massachusetts Medical Society in appointing me a delegate to the 109th annual

meeting of the Vermont State Medical Society, I beg to say that I attended that meeting in Burlington, Vermont, on October 12, 1922. In the evening previous, President Sears of the Vermont Society held a well-attended reception at the City Club. At the annual meeting all the reports of officers and committees were immediately referred to the House of Delegates, as that body has power to take all actions in regard to such reports; so that the annual meeting really transacts no business except through the House of Delegates, which is similar to our Council meetings, although with a very much smaller membership in proportion to the membership of the Society. The secretary had prepared a printed bulletin giving all those reports in full, and these were distributed to the members.

Before the scientific papers were begun the president called upon the visiting delegates. Two of these spoke highly in favor of a group meeting of the New England states. Your delegates were then called upon, and, being the senior, I placed before the meeting the question of the advisability of a large annual meeting including all the state societies. I also suggested that the New England special societies, such as the New England Tuberculosis Society, New England Public Health Society, New England Surgical Society, and similar bodies, should be invited to join in this movement. I suggested that each state society should appoint a committee to meet similar committees from the other states, and possibly similar committees from the special societies, to meet at some central point and discuss the feasibility of such a meeting; suggesting at the same time that it might be a good plan if all the special societies should arrange to hold their annual meetings at the same place and time, and that a House of Delegates should be created with perhaps two or three delegates from each of the special societies and from each of the state societies, and that this House of Delegates should appoint committees for special subjects, such as legislative work, organization work, and educational department. It was suggested that each specialty might hold its sectional meetings and that there should be a few large general meetings. These suggestions were made in order to give the members some idea of the general plan of the meeting, but it was explained that the various committees, when they met, would make the definite plans for the meeting. The whole suggestion was very favorably received by the members, and I was assured by several of them that Vermont would be very glad to take part in such a meeting.

Your other delegate, Dr. Sawyer, added materially to the arguments in favor of such a meeting and talked with many of the members relative to it.

Following this discussion the Society held a scientific session lasting throughout the morn-

ing, and another one in the afternoon, with a meeting of the House of Delegates late in the afternoon. The secretary of the Vermont Society spoke of the great value of interchanging delegates among the state societies and said that it was a custom very much worth while.

I sincerely thank the Society for the honor of representing them as their delegate to the Vermont meeting, and respectfully submit the above report.

A. P. MERRILL.

JOINT MEETING OF THE FOUR WESTERN DISTRICTS.

This meeting was held at the Kimball in Springfield on Thursday afternoon, October 19, 1922. There were about 90 representatives of Hampden, Hampshire, Franklin and Berkshire districts present. Dr. G. L. Gabler of Holyoke, president of the Hampden District, presided. Dr. A. P. Merrill reported for the committee of arrangements and called attention to the proposed annual meeting in Pittsfield. The importance of this change in location was emphasized and the fact brought out that the last annual meeting outside of Boston was in 1878. The organization to arrange for a similar meeting next year was provided for by the election of Dr. A. P. Merrill of Pittsfield, chairman, and H. L. Smith of Springfield, secretary, after recommendation of a nominating committee consisting of Drs. M. M. Brown, M. S. Eisner and Charles Moline.

The announcement was made that Professor S. Burt Wolbach would speak before the Hampden County Medical Society at the November meeting.

Dr. John W. Bartol, president of the Massachusetts Medical Society, was the first speaker. He discussed some of the problems relating to the growth and efficiency of the Society and spoke enthusiastically of the evidence of growing interest in and loyalty to the Society. He felt that the annual meeting of next year in Pittsfield will add to the general usefulness of the Society and assured the members that there would be a large delegation from the eastern part of the state. In reference to the desire to hold the Council meetings outside of Boston, he said that the response to a questionnaire sent to the 18 districts did not thus far indicate a strong desire for this change.

Dr. William H. Robey read an interesting paper on "Observation in Cardiac Diseases." He spoke of the prevailing custom of presenting papers on some features of research work, but he felt that a consideration of some of the interesting phases of an important disease was opportune. In considering the problems often met he strengthened his arguments by reference to his own experiences in treating patients under his care. When the paper appears in

print practitioners will find much of interest and can apply the suggestions presented with profit.

Mr. Henry L. Shattuck, a member of the Legislature and the Massachusetts bar, told of some legislative experiences. He referred to the failure of the Legislature to enact a bill relating to the tuberculin test on cattle, with the explanation that the expense involved was regarded as out of proportion to the anticipated results, and also because of the report that several cattle that had reacted to the tuberculin test were found, after being slaughtered, not diseased. He explained that the midwife bill was rejected because the educational requirements did not seem sufficient to warrant a feeling of security for the mothers to be cared for by these practitioners. He then gave a clear and logical analysis of the features of the Shepard-Towner law and expressed the feeling that it is unconstitutional and would be especially unjust in its application to Massachusetts and several other states.

Dr. W. P. Bowers explained the situation relating to the proposed joint meetings of the several New England state societies. The interest shown seemed to indicate that such meetings have value and it is the wish of the constituent societies that this custom shall be continued.

PLANS FOR CREATING A PERMANENT AND ASSOCIATE STAFF FOR THE NEW ENGLAND DEACONESS HOSPITAL IN BOSTON.

At the regular meeting of the Board of Managers, duly called and held in Committee Room "A" at the Wesleyan Building on March 21, 1922, the following recommendation was made:—

"The Hospital Committee at a meeting held March 20th voted to recommend through the Board of Managers to the Executive Committee the creation of a Hospital Staff. By unanimous vote of the Board of Managers this recommendation was adopted."

This was then brought to the meeting of the Executive Committee, held on Wednesday, March 22, 1922, and the following vote taken:—

"Voted: That the recommendations of the Hospital Committee through the Board of Managers that a Hospital Staff be created, be adopted."

After this action had been taken by both the Board of Managers and the Executive Committee it went back to the Hospital Committee for definite action, and at their regular meeting the following month a Special Committee was appointed by the Chairman to formulate some

definite plan for the establishment of a Hospital Staff as recommended. This Committee was made up as follows: Mr. William T. Rich, Chairman; Mr. E. C. Linn, Mrs. H. C. Gallagher, Mrs. Emma H. Watkins, Mrs. F. A. Patterson, the Superintendent, Miss Betts, the Executive Officer, Mr. C. W. Williams.

During the following months considerable attention was given by the Special Committee to the formation of such a Staff, with the result that from the twenty or more doctors practising in the Hospital, four were selected as definitely recommended by the Superintendent, Miss Betts, and her assistants. These were as follows: Daniel F. Jones, M.D., 195 Beacon Street; Elliot P. Joslin, M.D., 81 Bay State Road; Frank H. Lahey, M.D., 638 Beacon Street; F. Gorham Brigham, M.D., 35 Bay State Road.

At the meeting held in the General Office Committee Room by the Special Committee to consider the recommendation of a Permanent Staff every member as above named was present and also, by invitation, the four doctors to be considered for the Permanent Staff. The purpose of establishing a Staff was carefully outlined, and the spirit in which our work in the Deaconess Hospital is done, was fully discussed by the Chairman, Mr. Rich. All of this was unanimously approved by the Committee and the four doctors.

It was then unanimously voted by the Special Committee to present to the Hospital Committee the names of Doctors Jones, Joslin, Lahey and Brigham as being by them selected to form the Permanent Staff of the New England Deaconess Hospital for one year, their duties to commence January 1, 1923. It was also voted to recommend that an Associate Staff be created, this to consist of as many of those now practising in the Hospital as may desire to be on such a Staff and possibly others who may be definitely recommended later.

This action has been taken after months of consideration and from the fact that our increased bed capacity, when the new building is put into use, will demand the standardizing of our institution and the creating of a Staff to meet the requirements of the College of Surgeons. It is a source of great pleasure to the Committee that the four men selected to form our Permanent Staff are all well known to them, two having been with our Hospital almost from its beginning on Massachusetts Avenue. The other two men have a very high standing in their profession and have for several years been serving in our Hospital. The Committee feels that the future of the Hospital will be assured in the leadership of these four men and those who may be associated with them on the Associate Staff.

The above recommendations were unanimously adopted by the Hospital Committee at their meeting on October 17, 1922, and approved

at the regular meeting of the Board of Managers on the same date.

LIST OF DOCTORS INVITED TO BECOME MEMBERS OF THE ASSOCIATE STAFF.

Z. B. Adams, 166 Newbury Street; Arthur Allen, 99 Commonwealth Avenue; Freeman Allen, 200 Beacon Street; Franklin Baleh, 279 Clarendon Street; Wm. B. Breed, 402 Marlboro Street; G. W. W. Brewster, 213 Beacon Street; Alice G. Bryant, 502 Beacon Street; Wm. E. Cheney, 377 Commonwealth Avenue; George Clymer, 126 Bay State Road; Robert Cochrane, 86 Bay State Road; H. H. Crabtree, 205 Beacon Street; Arthur A. Cushing, 109 Sewall Avenue; Jas. M. Gallison, 520 Commonwealth Avenue; F. E. Garland, 483 Beacon Street; Harry W. Goodall, 205 Beacon Street; Horace Gray, 32 Fenway; D. Crosby Greene, 23 Bay State Road; Chas. Hare, 483 Beacon Street; E. W. Herman, 23 Bay State Road; A. A. Hornor, 86 Bay State Road; Joshua C. Hubbard, 86 Bay State Road; Henry T. Hutchins, 520 Commonwealth Avenue; Sarah M. Jordan, 638 Beacon Street; Walter Lane, 173 School Street; Chas. Lawrence, 520 Commonwealth Avenue; Geo. A. Leland, Jr., 144 Commonwealth Avenue; H. B. Loder, 520 Commonwealth Avenue; F. B. Lund, 527 Beacon Street; S. F. McKeen, 556 Cambridge Street, Allston; Richard Miller, 402 Marlboro Street; L. B. Morrison, 370 Marlboro Street; Frank Pemberton, 198 Beacon Street; B. H. Ragle, 226 Marlboro Street; Mark Rogers, 483 Beacon Street; Chas. L. Scudder, 144 Commonwealth Avenue; Lincoln Sise, 638 Beacon Street; Geo. G. Smith, 352 Marlboro Street; P. Somers Smyth, 270 Commonwealth Avenue; James S. Stone, 286 Marlboro Street; Louisa Paine Tingley, 9 Massachusetts Avenue; R. S. Titus, 35 Bay State Road; George Tobey, 416 Marlboro Street; Harold Tobey, 416 Marlboro Street; Richard G. Wadsworth, 520 Commonwealth Avenue; Irving J. Walker, 520 Commonwealth Avenue; Franklin W. White, 322 Marlboro Street; Ernest B. Young, 434 Marlboro Street.

BOYLSTON MEDICAL PRIZES.

These prizes, which are open to public competition, are offered for the best dissertation on questions in medical science proposed by the Boylston Medical Committee.

At the annual meeting held in Boston in 1920 a prize of three hundred dollars was awarded to an essay entitled, "Acute Inflammation of the Nose, Pharynx and Tonsils," by Mr. Stuart Mudd of St. Louis.

For 1922 there is offered a prize of five hundred dollars and the Boylston Prize Medal, for the best dissertation on the results of original research in medicine, the subject to be chosen by

the writer. The Boylston Prize Medal will be added to the money prize only in case the winning essay shows special originality in the investigations detailed.

Dissertations entered for this prize must be in the hands of the Secretary, Reid Hunt, M.D., Harvard Medical School, Boston, Mass., on or before February 1, 1923.

In awarding these prizes, preference will be given to dissertations which exhibit original work, but if no dissertation is considered worthy of a prize, the award may be withheld.

Each dissertation must bear, in place of the author's name, some sentence or device, and must be accompanied by a sealed packet, bearing the same sentence or device, and containing the author's name and residence within.

Any elow by which the authorship of a dissertation is made known to the Committee will debar such dissertation from competition.

Dissertations must be printed or typewritten, and their pages must be bound in book form.

All unsuccessful dissertations are deposited with the Secretary, from whom they may be obtained, with the sealed packet unopened, if called for within one year after they have been received.

By an order adopted in 1826, the Secretary was directed to publish annually the following votes:

1. That the Board does not consider itself as approving the doctrines contained in any of the dissertations to which premiums may be adjudged.

2. That, in case of publication of a successful dissertation, the author be considered as bound to print the above vote in connection therewith.

The Boylston Medical Committee is appointed by the President and Fellows of Harvard College, and consists of the following physicians:

Reid Hunt, M.D., Secretary; William T. Porter, M.D., Henry A. Christian, M.D., John Warren, M.D.

The address of the Secretary of the Boylston Medical Committee is Reid Hunt, M.D., Harvard Medical School, Boston, Mass.

EIGHTH ANNUAL REPORT OF THE PETER BENT BRIGHAM HOSPITAL.

The report of the Peter Bent Brigham Hospital for the year 1921 is rather more interesting than the usual run of hospital reports. This is due to the fact that the report is used by the Superintendent and the Chiefs of the Surgical and Medical Services not simply as a vehicle for a few stereotyped remarks, but as a medium for the discussion of some of their problems. One is agreeably impressed by the ungrudging manner in which all of the writers express themselves in regard to the work of their respective staffs. One is led to infer that the spirit of the

hospital is decidedly one of co-operation and mutual support. Dr. Cushing, in his report as Surgeon-in-Chief, objects to the publication in hospital reports of long lists of operations. He suggests that it would be much more valuable if each year the leading hospitals would publish only the statistics of a certain phase of surgery, giving not only the number of operations and deaths, but including end-results as well. In this way, every year some surgical problem would be brought up to date.

Dr. Christian's report brings out the fact that although the cost of labor, of nursing, and of food, has increased very markedly since the opening of the hospital, the salaries of the medical staff have been increased very little. More patients have been cared for, but the increase in medical personnel has not kept up with the demand for their services. He refers to the loss of Dr. Francis Peabody, who resigned as Physician of the Peter Bent Brigham Hospital to become a Visiting Physician to the Boston City Hospital, and speaks of him in the highest terms as investigator, clinician, and colleague.

There are the usual figures dealing with the number of patients treated and with the cost of their care. These figures seemed rather more intelligently arranged than in the average report. They seemed to illustrate some point more clearly. Four thousand three hundred and fifteen patients were admitted to the Hospital in 1921, and there were 15,414 new patients treated in the Out-door Department. The daily per capita cost of ward patients was \$5.82; the cost per visit of out-door patients was 58 cents.

Mr. George Gask, Professor of Surgery at London University and Surgeon to St. Bartholomew's Hospital, took charge of the Surgical Service for two weeks.

The Trustees regretfully report the death of Mr. Walter Hunnewell, a Charter Member of the Corporation.

APPOINTMENT OF DR. RANSOM A. GREENE.

Dr. Ransom A. Greene has been appointed Superintendent of the Taunton State Hospital. Dr. Greene was assistant to the Commissioner, Department of Mental Diseases, from February, 1922. From June, 1920 to February, 1922, he was Assistant Superintendent at Danvers State Hospital; August, 1919, to June, 1920, Assistant Superintendent at Gardner State Colony. Previous to this last position he was Captain, Medical Corps, U. S. A., and previous to Army service was for six years senior assistant physician at Monson State Hospital, Palmer, Mass. This extensive service and training brings to the care of the Taunton Hospital one who will undoubtedly continue and promote the usefulness of this institution.

FURTHER INFORMATION REGARDING DR. ABRAMS.

Attention has been called to a letter written by President Wilbur of Stanford University to the Associated Press, a copy of which appears below and which carries a refutation of some statements which have appeared in public:

Oct. 10, 1922.

The Manager, Associated Press, Chicago, Illinois.

Dear Sir:

May I call your attention to the enclosed clippings, apparently sent out from your office, indicating that Dr. Albert Abrams is connected with Leland Stanford University. The same error has been corrected several times. Dr. Abrams has never had any association with Stanford University. He is a graduate of Cooper Medical College, which was taken over by Stanford University long after his graduation. It is evident that Dr. Abrams, or some one associated with his publicity work, has tried to keep up the fiction of his association with Stanford.

It seems to me bad enough for such a responsible institution as the Associated Press to herald far and wide the scientific rubbish of Dr. Abrams, and worse still to connect the name of the University in any way with such absurdities. If there is an opportunity in any later dispatch to correct this misstatement it would be appreciated. Naturally I realize the difficulty of ever following up such a mistake.

I should think it would be clear to the managers of the Associated Press by this time just what kind of a man they are dealing with in Dr. Abrams. Why not give publicity to some of the worth-while things that are being done in this country instead of making American science the laughing stock of the world? With the monkey gland publicity, Abrams' electronic diagnoses of male and female handwriting, and other such stuff, it is naturally confusing to all of those that are not trained in such matters.

I am writing this because I realize that there is a constant desire in the Associated Press to be accurate, conservative and constructive rather than to merely see how many lines of space can be occupied in the papers of the country. Very truly yours,

(Signed) RAY LYMAN WILBUR,
President.

ANIMAL EXPERIMENTATION.

Announcement is made below of the program of the Public Meeting to be held in Ford Hall, Boston, by the Suffolk District of the Massachusetts Medical Society, on Sunday afternoon, November 19th. Animal Experimentation will be discussed from the aspect not only of what it has done for Scientific Medicine but also of what Scientific Medicine has done for animals. The list of speakers is itself enough to attract a large audience of physicians and of the public. The subject is one of extreme importance. Massachusetts has been relatively free from the activities of the anti-vivisectionists recently. Last year California had a popular vote on a very drastic bill introduced under the provisions of the initiative and referendum which, if it had passed, would have prevented all animal experimentation and the production of such remedies as diphtheria antitoxin.

The bill was defeated. This year in order to catch the farmer's vote and the hunter's vote the measure is modified to permit operations on domestic animals and to permit the trapping of any wild animals. It seems as if antagonism to Scientific Medicine rather than the prevention of cruelty to animals was the impelling force among those who advocate this measure.

A similar measure is this year proposed in Colorado. The results of these referenda will be known before this article is published.

It has become plain that the influence of the Medical Profession cannot by itself defeat such vicious attempts which, if endorsed, will seriously interfere with the progress of medicine and will deprive the physician of such tried and proved agents as the antitoxin for diphtheria and the serum for meningitis.

The Suffolk District is taking the first step toward educating the public on the matters included in the headings on the program. The time has come when we must rely on popular knowledge rather than on professional authority in combating ignorance and prejudice. Every physician is urged to inform his patients and friends of this very important meeting and to invite them most cordially to be present.

A Public Meeting will be held by the Suffolk District of The Massachusetts Medical Society in Ford Hall, Ashburton Place, Boston, on Sunday, November 19th, at 4 P. M. Charles W. Eliot, President Emeritus of Harvard University will preside.

What Animal Experimentation has done for Scientific Medicine.	What Scientific Medicine has done for Animals.
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The value of Animal Experimentation to the Physician in his daily work.—Dr. Walter B. Cannon, Professor of Physiology, Harvard Medical School.	The Benefit to Animals from Medical Experimentation.—Professor George B. H. Parker, Director of the Zoological Laboratory, Harvard University.
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The Aspect of Antitoxins in Relation to Animal Experimentation.—Dr. Edwin H. Place, Physician in Chief, South Department, Boston City Hospital.

What Animal Experimentation has done for Exotic and Tropical Medicine.—Dr. Richard P. Strong, Director of the School of Tropical Medicine, Harvard University.

The Public are cordially invited. No tickets will be required.

Correspondence.

COMMITTEE FOR THE PROTECTION OF ANIMAL EXPERIMENTATION.

Mr. Editor:

On December 9, 1921, the Springfield Republican published a letter signed by Mr. French, President

of the New England Anti-vivisection Society. In this letter Mr. French stated that in 1902 and 1903 a long list of public men in those years had signed a petition to the Massachusetts legislature for a law restricting vivisection. Among these men Mr. French included the names of Admiral Van Reyepen, Butler Ames, Frank A. Day, and F. H. Gillett. The undersigned, on behalf of the Committee for the Protection of Animal Experimentation, immediately wrote to these men and received *emphatic denials* that they had ever supported the A. V. cause.

From Admiral W. K. Van Reyepen: "I would state that I am not an anti-vivisectionist. I have never written but one letter on the subject and that was in reply to one received from a woman asking me to join in denouncing the cruelty to animals practised by some Washington doctors. I replied that I was opposed to cruelty to animals, but from my acquaintance with Washington doctors I did not believe that it was practised by any of them. This ended our correspondence."

From Mr. Henry B. Day: "I had no recollection of my brother being opposed to vivisection, but I thought I would talk with Mrs. Frank Day before I wrote you. I have now had a talk with her and she says most emphatically that he was not opposed to humane vivisection and in fact believed it is a great means of benefit to humanity. I see no reason why you should not use this statement in any way you see fit."

From Speaker Gillett: "Your letter received. There is not the slightest truth in any intimation by anybody that I am an opponent of vivisection. I have never given any special attention to the subject nor have I ever stated my position as for or against, but I should have to be shown a great deal more than I have been to be against it, and anybody who has made a statement about me has done it absolutely without warrant."

From Mr. Butler Ames: "My brother, Adelbert, calls my attention to a letter from you to him in which I have been put down as a supporter of the Antis. Of course, so far as I know, I have never accepted any such position nor made a statement that might be distorted to that effect. You may use this information as you see fit."

Upon this apparently excellent evidence we discredited Mr. French's assertions, in letters to the *Republican* on December 15 and December 31, and in the Third Statement of the Committee for the Protection of Animal Experimentation. Mr. French has proved, however, that Messrs. Day, Gillett, and Ames did sign such a petition although there is no such evidence in the case of Admiral Van Reyepen. However, Mr. French states that the Admiral did support the bill in a letter which has now been mislaid or lost.

In justice to Mr. French who has been most patient in allowing us to examine fully into the facts, we must now admit our error and state that we do not accuse him of falsehood.

It is entirely evident, however, that the Committee acted in good faith and the fact that these men at present believe in vivisection is the only point which it is important to establish.

Signed:

T. BARBOUR,
J. C. PHILLIPS,
E. WIGGLESWORTH.

A CORRECTION.

Oct. 28, 1922.

Mr. Editor:

In the JOURNAL of October 26, 1922, page 618, there is a squib entitled "The Diphtheria Menace," which I believe that you or any other physician familiar

with the Schick toxin-antitoxin work will want corrected.

Thanking you for your coöperation, I am,

Sincerely yours,

F. X. MAHONEY,
Health Commissioner.

[The error is obvious. The words "when treated with toxin-antitoxin" should have been omitted. The JOURNAL has so many times referred to the Schick test and brought out the process of immunization by the use of toxin-antitoxin that we trust the readers will pardon a mechanical error.—Editor.]

Obituaries.

JOHN STANDISH FOSTER BUSH, M.D.

DR. JOHN STANDISH FOSTER BUSH, a retired Fellow of the Massachusetts Medical Society, died at Hartford, Conn., October 20, 1922, at the age of 72.

The son of the Rev. Solon W. and Theoda Foster Bush, he was born in Burlington, Vt., June 4, 1850. He was educated in the Burlington schools and at Roxbury Latin School, his parents having moved to Boston when he was 14 years old. After taking courses at the Massachusetts Institute of Technology he entered Harvard Medical School, graduating in 1874. He served as house officer at the Massachusetts General Hospital and settled in practice in Boston, where he was surgeon to the Boston Dispensary for many years and conducted a large private practice. Dr. Bush was prominent in Masonic circles and was past commander of St. Bernard Commandery, K. T., and later grand treasurer and supreme representative of the Grand Council of the Legion of Honor of Massachusetts. He had lived in Andover and Winchendon since his retirement some ten years ago.

In 1875 he married Miss Josephine M. Mason, who with two daughters survives him.

THOMAS FRANCIS GREENE, M.D.

DR. THOMAS F. GREENE, a prominent practitioner of Roxbury, died at his home following a collapse while touring in western Massachusetts a few weeks ago, on October 22, 1922, at the age of 60.

Dr. Greene was born in New Haven, Conn., had his education at the public schools of that city, came to Boston, and became a proofreader on the *Boston Herald*. In time he entered Tufts College Medical School, receiving there an M.D. in 1894, and settling in practice in Roxbury, where of late he had lived with his brother, Dr. William H. Greene, both Fellows of the Massachusetts Medical Society.

He married Miss Lillian Keeler, who died several years ago. One daughter survives him.

Dr. Greene was connected with St. Mary's Infant Asylum, St. Margaret's Hospital and the Hart Private Hospital, devoting much of his attention to the practice of obstetrics. After

the year 1914 he was a Councilor of the state medical society; in the year 1916 he was president of the Norfolk District Medical Society. He was prominent in the Knights of Columbus, being a grand knight of Rose Croix Council.

Among his memberships were numbered the Catholic Union, the Young Men's Catholic Association, the Franklin Typographical Society, the International Typographical Union, the Boston Lodge of Elks, the Roxbury Historical Society and the American Medical Association.

AMERICAN COLLEGE OF SURGEONS.

New members admitted to Fellowship from the New England States October 27, 1922:

MAINE.

Sullivan L. Andrews, Lewiston; Daniel Alden Barrell, Auburn; Charles Bell, Strong; Sherman W. Boone, Presque Isle; Charles L. Cragin, Portland; Benjamin G. W. Cushman, Auburn; E. Eugene Holt, Jr., Portland; Daniel McCann, Bangor; Frederick W. Mitchell, Houlton.

MASSACHUSETTS.

Arthur W. Allen, Boston; Conrad Bell, Waltham; Richard S. Benner, Springfield; Charles S. Benson, Haverhill; George A. Buckley, Brockton; Ernest G. Crabtree, Boston; George D. Cutler, Boston; Eugene A. Darling, Cambridge; Isaac S. F. Dodd, Pittsfield; Louis M. Freedman, Boston; George L. Gahler, Holyoke; James Murry Gallison, Boston; Edwin D. Gardner, New Bedford; Harry Homer Germain, Boston; Frederic Hagler, Springfield; Torr Wagner Harner, Boston; Thomas P. Hennelly, Pittsfield; Delbert L. Jackson, Boston; Francis T. Jantzen, Boston; Holder C. Kirby, New Bedford; John H. Lambert, Lowell; Peirce H. Leavitt, Brockton; Arthur T. Legg, Boston; Albert Fay Lowell, Gardner; Alverne P. Lowell, Fitchburg; Donald Macomber, Boston; Charles D. McCann, Brockton; Richard H. Miller, Boston; William R. Morrison, Boston; Bruce W. Paddock, Pittsfield; John H. Payne, Boston; Grace E. Rochford, Boston; Edward B. Sheehan, Boston; Edward A. Supple, Boston; John B. Thomas, Pittsfield; Henry Tolman, Salem; William J. Walton, Boston; Frank Hall Washburn, Holden; Philip D. Wilson, Boston; Edward L. Young, Jr., Boston.

VERMONT.

William Lindsay, Montpelier; Michael F. McGuire, Montpelier.

CONNECTICUT.

Walter L. Barber, Jr., Waterbury; Jerome S. Chaffee, Sharon; Ansel G. Cook, Hartford; Dean Foster, Stamford; Daniel C. Patterson, Bridgeport; Richard F. Rand, New Haven; Edward R. Roberts, Bridgeport; Joseph E. Root, Hartford; Dorland Smith, Bridgeport; Edward A. Stratton, Danbury; Raynham Townshend, New Haven; David M. Trearton, Bridgeport; Henry E. Waterhouse, Bridgeport.

RHODE ISLAND.

Martin S. Budlong, Providence; Ira Hart Noyes, Providence.

NEW HAMPSHIRE.

Eugene B. Eastman, Portsmouth; Ezra A. Jones, Manchester; Thomas W. Luce, Portsmouth; Louis B. Marcou, Berlin; Wellington A. Thompson, Manchester.

PROGRAMS FOR HOSPITAL, CLINICS DURING CANCER WEEK, NOV. 12 TO 18, 1922.

CARNEY HOSPITAL.

Monday, November 13, 1922.

9:30 A. M.

Gynecological Operations and Demonstrations of End-Results: Dr. F. W. Johnson and Dr. L. E. Phaneuf.

Surgical Operations and Demonstrations of End-Results: Dr. J. T. Bottomley, Dr. D. F. Mahoney and Dr. A. McK. Fraser.

THE PETER BENT BRIGHAM HOSPITAL.

AMPHITHEATRE, OPERATING BUILDING,

10 A. M. to 12 M.,

Tuesday, November 14, 1922.

The Pathology of Malignant Disease in Relation to Age: Dr. Wolbach.

The Treatment of Malignant Disease of the Prostate and Bladder: Dr. Quinby.

Malignant Disease of the Central Nervous System: Dr. Cushing.

Symptomatology of Cancer of the Alimentary Tract and Its Operability: Mouth to Pylorus: Dr. Cheever. Large Intestine and Rectum: Dr. Homans.

Recent Advances in the X-Ray Treatment of Malignant Disease: Dr. Sosman.

OPERATIVE CLINIC DURING THE MORNING.

COLLIS P. HUNTINGTON MEMORIAL HOSPITAL.

Tuesday, November 14, 1922.

Free Special Clinic, 3 to 4:30.

2:30 P. M.

The Cancer Commission of Harvard University, Dr. R. B. Greenough.

Radium in the Treatment of Disease,

Dr. William Duane,

Cancer of the Skin,

Dr. L. S. McKittrick.

The State Free Diagnosis Service,

Dr. J. H. Wright.

Cancer of the Buccal Cavity,

Dr. C. C. Simmons.

Cancer of the Uterus,

Dr. G. A. Leland, Jr.

Laboratory Work in Bio-Physics,

Dr. W. T. Bowie.

Radium in the Treatment of Leukaemia,

Dr. G. R. Minot.

Radium in the Treatment of Cancer of the Genito-

Urinary Organs,

Dr. G. G. Smith.

The Treatment of Cancer of the Nose, Throat and

Accessory Sinuses,

Dr. D. C. Greene.

THE BOSTON DISPENSARY.

Thursday, November 16, 1922,

9 to 10:30 A. M.

Free clinic to which patients who have or think they have cancer may come for examination and advice without charge.

12 M.

Demonstration of Cases and Methods of Diagnosis, Particularly of Cancer of the Gastro-intestinal Tract: Dr. William E. Preble and associates.

Cancer as an Out-Patient Problem: Dr. Hilbert F. Day.

Cancer of Mouth, Nose and Throat: Dr. Harry J. Inglis.

Cancer to the Pathologist: Dr. William A. Hinton.

Malignancy in the Eye: Dr. Joseph J. Skirball.

Skin Cancers and Their Treatment by Radium: Dr. Henry J. Perry.

X-ray plates illustrating the subject will be on

exhibition in the X-Ray Department (Dr. Hermann N. Osgood).

Light refreshments.

MASSACHUSETTS GENERAL HOSPITAL.

Free Special Clinic, Monday, November 13—2-3.30.

SURGICAL AMPHITHEATRE,
Friday, November 17, 1922,
10 A. M.

10:00—The Control of Cancer: Dr. R. B. Greenough.
10:15—Cancer of the Skin: Dr. C. J. White.
10:30—Cancer of the Lip and Mouth: Dr. C. C. Simmons.
10:45—Cancer of the Nose and Throat: Dr. D. C. Greene.
11:00—Cancer of the Stomach: Dr. C. L. Scudder.
11:15—Cancer of the Colon and Rectum: Dr. E. P. Richardson, Dr. L. S. McKittrick.
11:30—Cancer of the Breast: Dr. R. B. Greenough.
11:45—Cancer of the Uterus: Dr. Lincoln Davis.
12:00—Cancer of the Genito-Urinary Organs: Dr. J. D. Barney.
12:15—The X-Ray Therapy of Cancer: Dr. G. W. Holmes.

BOSTON CITY HOSPITAL.

CHEEVER SURGICAL AMPHITHEATRE.
Saturday, November 18, 1922,
10:30 A. M. to 12 M.

In coöperation with the Cancer Week Campaign of the American Society for the Control of Cancer, the following symposium will be held in the Cheever Surgical Amphitheatre. Physicians, students and nurses are welcome.

The Pathologist's Conception of Cancer: Dr. F. B. Mallory.

Early Recognition of Uterine Cancer: Dr. R. M. Green.

Röntgen Differentiation of Gastric Malignancy and Chronic Ulcer: Dr. F. P. Butler.

Premalignant and Early Malignant Skin Lesions: Dr. T. W. Thorndike.

Symptoms Suggesting Concealed Malignancy: Dr. R. C. Larrabee.

Detection of Malignancy of the Genito-Urinary Tract: Dr. H. H. Howard.

Radium and X-Ray: Indication for Their Use: Dr. Herman Osgood.

Surgical Procedures for Removal of Malignant Growths: Dr. Halsey Loder.

JOINT MEETING OF THE NEW ENGLAND ROENTGEN RAY AND NEW ENGLAND LARYNGOLOGICAL SOCIETIES.

These societies will meet on November 10 next at the Boston Medical Library. Papers will be presented by Dr. Charles S. Stokes of New York City and Dr. W. D. Witherbee of New York City. Refreshments will be served after the meeting.

A. S. MERRILL, M.D.,
Secretary, N. E. Roentgen Ray Society.

WOMEN FOR SHEPPARD-TOWNER BILL.—The Maine League of Women Voters has, according to the papers, adopted a resolution favoring the Shepard-Towner bill. The Governor has placed himself on record as opposing this measure.

DR. OSCAR M. SCHLOSS will speak on Ketosis in Infants and Children in the Section of Pediatrics, N. Y. Academy of Medicine, Nov. 9, 1922.

HARVARD MEDICAL ALUMNI ASSOCIATION.

NOTICE OF MEETING.

The Council of the Association, at a meeting held on October 31, 1922, has voted to call a regular meeting of the Association for Monday, November 20, in the faculty room of the Harvard Medical School, at 12:30 P. M., for the purpose of acting upon the following recommendations passed by the Council, to wit:

1. "That Section 1, Article III. of the constitution be amended to read that 'Each graduate of the Harvard Medical School shall become *ipso facto* a member of the Harvard Medical Alumni Association.'"

2. "That Section 4, Article III. be amended by adding the following sentence: 'All members of the teaching staff of the Harvard Medical School shall during their term of service be considered honorary members of the Harvard Medical Alumni Association.'"

FRANCIS M. RACKEMANN, M.D., Secretary.

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Hyannis, —February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol South District:—Fall River,—May 3, 1923.

Essex North District:—Haverhill, (Semi-Annual Meeting)—Jan. 3, 1923. Y. M. O. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Suffolk District:—Combined meeting of Boston Medical Library and Suffolk District, November 22, 1922; December 27, 1922; January 31, 1923; February 28, 1923; March 23, 1923; Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District:—Meetings; Wednesday, January 31, 1923.

Worcester District meetings in Worcester, Dec. 13, 1922, Jan. 10, Feb. 14, March 14, April 11 and May 9, 1923, the last named date being the annual meeting.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

November, 1922. Massachusetts Society of Examining Physicians, (Date and place of meeting undecided), Hilbert F. Day, Secretary. National Cancer Week, November 12 to 18.

November 10, 1922. Joint meeting of the New England Roentgen Ray Society and the New England Laryngological Society at the Boston Medical Library.

December, 1922. New England Dermatological Society Meeting, Wednesday, December 13, 1922, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary.

December 26-30, 1922. American Association for Advancement of Science meets in Boston.

January, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston, W. H. Allen, Mansfield, Mass., Secretary.

February, 1923. New England Dermatological Society Meeting, February 14, 1923, at 3.30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

March, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary.

April, 1923. New England Dermatological Society Meeting, April 11, 1923, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston, W. H. Allen, Mansfield, Mass., Secretary.

May, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided). American Pediatric Society Meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind., H. C. Carpenter, Secretary.

June, 1923. American Medical Association, San Francisco, June 25-29, 1923, Alexander B. Craig,* Chicago, Ill., Secretary.

July, 1923. Massachusetts Association of Boards of Health, July 26, Nantasket, W. H. Allen, Mansfield, Mass., Secretary.

*Deceased Sept. 2, 1922.

The Boston Medical and Surgical Journal

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Original Articles.

SUBPHRENIC ABSCESS.*

BY HOWARD M. CLUTE, M.D., F.A.C.S., BOSTON,
Assistant Out-Patient Surgeon, Boston City Hospital.

A CONDITION which is the complication of a preceding disease possesses an unusual interest. A complication that may follow any abdominal surgical lesion, whether common or rare, demands attention; a complication that is seen but seldom must be recalled to memory lest it be overlooked on the rare occasions of its presence; a complication that when diagnosed offers large opportunity for cure is worthy of careful study. These three aspects appear in the condition known as subphrenic abscess.

Subphrenic abscess is rarely, if ever, a primary disease, but is secondary to an infective process elsewhere in the body. This infection is commonly in the abdomen, rarely in the thorax. Surgical literature of today reveals this complication much less frequently than the literature of fifteen years ago, no doubt because the modern surgical principles of drainage account in part for this improvement. The condition is found most frequently after the perforation of an ulcer of the stomach or duodenum. Appendicitis is second in the list of frequent causes. Other and less common factors preceding subphrenic ab-

cess are: disease of the gall-bladder and biliary tract; disease of the pancreas, the spleen, and the liver; empyema; wounds of the abdomen and chest; soiling of the abdominal cavity at operation; and septicæmia with localization of infection between the diaphragm and the liver.

The situation of the abscess on the under surface of the diaphragm depends upon (1) the preceding inflammatory process, and (2) the anatomical relations of the liver and the diaphragm. Save for the "uncovered area," posteriorly, the surface of the liver is entirely covered with peritoneum. From the margins of this uncovered area on the right lobe are reflections of peritoneum running to the diaphragm, called the coronary ligament. The right extremity of this coronary ligament has been called the right lateral ligament. The left lateral ligament is a fold of peritoneum running from the upper posterior surface of the left lobe to the diaphragm. The coronary ligament and the left lateral ligament divide the diaphragmatic surface roughly into an anterior and a posterior half. This division is completed by the other peritoneal reflections in this area which form the gastro-splenic omentum and the phrenocolic ligament. A little to the right of the midline of the anterior abdominal wall, the falciform ligament arises. This fold of peritoneum is attached to the diaphragm and passes to the anterior and superior faces of the liver. On the upper aspect of the liver surfaces the two layers of the falciform ligament separate. The right layer passes into the coronary ligament and the

*An illustration of this insidious type was the case of a soldier who sustained a perforating bullet wound of the abdomen. He had no difficulty until two weeks later when he developed fever of increasing severity. He was operated upon by the technique here described and discharged cured.

left layer into the lateral ligament. The falciform ligament thus divides the anterior and superior peritoneal faces of the liver into right and left halves.

This arrangement of peritoneal reflections produces four fairly distinct potential spaces between the liver and the diaphragm which are

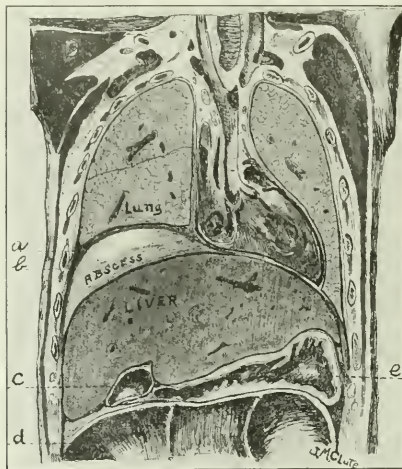


FIG. 1. Drawing showing anatomical relations of abscess in right anterior subphrenic space. (a) represents a small collection of serous exudate in pleural cavity; (b) the diaphragm. Note elevation of diaphragm on right with resulting compression of lung.

(Sketch adapted from "Toldt's Atlas of Anatomy.")

lined by peritoneum. There is only one space, called the "uncovered area" of the liver, in which the liver and the diaphragm are in contact without the interposition of peritoneal surfaces.

The boundaries of these four intraperitoneal spaces are as follows:

The right anterior space has the right lateral and coronary ligaments behind; the upper surface of the liver below; the falciform ligament to the left and the diaphragm above.

The left anterior space has the left lateral ligament behind, the diaphragm above. To the right is the falciform ligament, the stomach and the gastro-hepatic ligament. To the left is the abdominal wall and the spleen.

The right posterior space is sometimes termed the right subhepatic space or right kidney pouch. It is bounded above by the liver, the gall-bladder and the right lateral and coronary ligaments. Posteriorly is the diaphragm. To the left is the margin of the gastro-hepatic omentum and the foramen of Winslow.

The left intraperitoneal space is the lesser peritoneal cavity.

Drainage into one of these spaces is favored by gravity when the patient is lying supine in bed. The products from a perforated gastric ulcer tend naturally to collect in the right an-

terior space. A high lying appendix abscess tends naturally to drain into the right posterior space by way of the lateral colic groove. An ulcer of the posterior surface of the stomach may perforate into the left posterior space. The lymphatics behind the cecum and ascending colon pass upward into the subphrenic area. Infection may readily follow this route.

Barnard pointed out years ago that there was a communication between the lymphatics in the region of the deep epigastric artery with the falciform ligament which leads to the subphrenic region. There may, of course, be abscess formation from the presence of an infection in the blood stream. A pyelphlebitis may occur and present as one of its features an abscess about the portal vein just below the diaphragm.

The onset of symptoms of subphrenic abscess may be insidious or stormy. In the cases we have seen, the first sign of approaching trouble has been a steadily rising daily fever with no local evidence of the cause. The patient is convalescing fairly well from a surgical lesion of the abdomen when his chart assumes the so-called "picket fence" appearance. Chills and sweats may accompany the daily rise in temperature. He now loses ground rapidly. His appetite becomes capricious or is absent. His face is drawn and haggard. He loses weight very rapidly. He complains of a sense of discomfort or fullness in the epigastric region. It may be impossible for him to draw a deep breath. Cough and hiccough are present in a great many cases. Pain with deep breathing is a frequent accompaniment of the early stages of the disease from the presence of a diaphragmatic pleurisy. There is frequently considerable gastric distress with belching of gas and sour eructations. Constipation is sometimes marked; diarrhoea is rare. In general, the patient looks and feels very sick, but has little or nothing on which to base his complaints.

Occasionally the onset is much more acute. This is especially prone to happen with a perforation of the stomach or duodenum, which suddenly floods the subphrenic area with irritating products. Here the initial shock and collapse is due to the perforation. The outcome may be a diffuse peritonitis or a localized subphrenic collection of pus with symptoms such as we have set forth.

The physical signs in such a case will vary, first with the situation of the abscess, and second with the type of abscess. There are two types of abscesses. One, containing fluid (pus) alone; the other, containing pus and gas. The gas may come from the lumen of a viscus or from the fermentative activity of anaerobic bacteria present in the pus. We have seen two cases with pus alone and one case with pus and gas. In general, inspection reveals marked limitation of motion of the affected side of the chest. There may be visible widening or bulging of the right lower thorax. Edema of the side or back of the chest may occur. Percussion will reveal flatness over

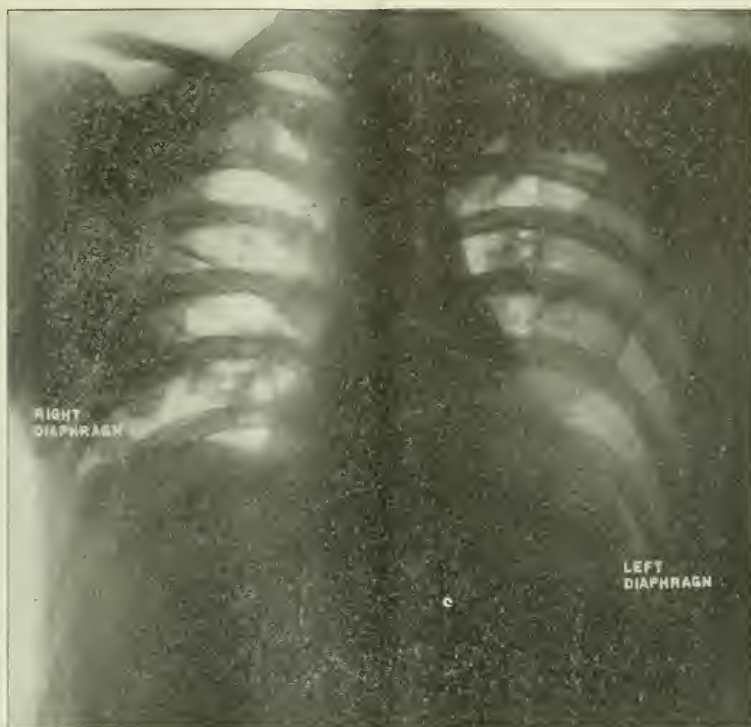


FIG. 2. X-ray in supine position of Case 3. Note diaphragm high and smoothly rounded on right. Gas bubble not visible in this position. (X-ray with portable machine by Dr. Frank Wheatley.)

the lower chest in front and in back if the abscess contains pus alone. The presence of gas in the abscess cavity will give a tympanitic note to percussion with obliteration of the lower liver dullness. The dullness may extend anteriorly as high as the second rib and posteriorly to the middle of the scapula. Often the line of percussion dullness will descend with deep inspiration quite perceptibly.

Auscultation will reveal absent breath sounds and absent vocal fremitus up to the limit of dullness. Above this level, however, both vocal and tactile fremitus may be slightly increased for a limited distance due to the margin of compressed lung next to the high diaphragm. Occasionally a pleuritic friction rub may be heard over the collection of fluid, but this is not found constantly. When there is gas in the abscess cavity, a succussion splash may be obtained by shaking the patient.

The occasional presence of a varying amount of fluid in the pleural cavity renders the diagnosis more difficult. Simple or purulent pleurisy is frequently diagnosed in these cases. An exploratory needle puncture may be a valuable

aid to diagnosis. It should, however, be done with great care. We may obtain clear straw-colored sterile fluid from the pleural cavity and then when the needle perforates the diaphragm and enters the abscess we find gas and pus entering our syringe. Sterile fluid followed by pus at the same tap is almost pathognomonic of subphrenic abscess.

Palpation may reveal the liver border well below the costal margin. Compression of the chest wall low down or strong "fist percussion" may cause pain. A well marked leucocytosis is generally present though in certain chronic cases there may be a leucopenia.

Very often the diagnosis of subphrenic abscess can be finally made only by x-ray, which offers us the most positive findings in the majority of cases. By the symptoms and physical signs alone, it may well be impossible to determine whether we are dealing with a subphrenic abscess, a pyothorax, or a pyopneumothorax. X-ray plates and fluoroscopic examinations will generally settle the question definitely.

Normally the right diaphragm is one-fourth to one-half inch higher than the left. Each side



FIG. 3. X-ray of CASE 3, in sitting position. Note persistent high diaphragm on right; straight line level of the pus in the abscess with gas above it. (X-ray with portable machine by Dr. Frank Wheatley.)

moves straight up and down with respiration and there is no flattening of the curve. The normal range of this motion is one-half to three-fourths inch, with quiet breathing, but with forced respiration the range increases to two and one-half or three inches.

Any inequality or fixation of these movements is pathological. In subphrenic abscess we find the diaphragm on the affected side raised and fixed. It does not move with respiration to any degree, while the unaffected side maintains its normal range of motion. The lung above the fixed diaphragm is compressed. The level of the diaphragm may be only slightly raised, or it may reach up to the third rib. The costo-phrenic angle is not obliterated as it is with thoracic collections of fluid.

The line of the diaphragm is a smooth and regular curve, involving the entire course of the affected side. In liver tumors, liver abscesses and adhesions from old pleurisy, this curve is more irregular and localized more sharply to a single area of the diaphragm. A high, fixed diaphragm with a persisting costo-phrenic angle is very typical of subphrenic abscess.

The course of the disease is marked by steady decline. Weight loss is generally very pronounced, as are the weakness and general debility. Without operation, the mortality varies from 82% (Eisendrath, quoted by Lockwood) to 100%. Death results from the effects of the long-continued toxemia or from rupture of the abscess into some neighboring viscus. With

operation, the mortality is about 25% of the total cases.

The treatment of subphrenic abscess is incision and drainage. The anatomical location of the abscess, however, should be carefully considered, for this will determine the method of approach. Abscesses on the left side must always be first approached from the front. In the left anterior space, drainage must be instituted through the anterior abdominal wall. If the left posterior space is found to contain pus, the anterior incision should not be used; but a second incision should be made to approach the collection from behind. This may or may not be below the rib margin. Collections of pus on the right side are drained either (1) from below the rib margins; (2) by incision between the lower ribs; or (3) resection of one or more ribs.

The situation of these abscesses is such that to drain them adequately we must either go through the lower part of the pleural cavity, or we must retract the pector and go around it. Great care must be taken, in either case, that the pleural cavity is not laid open to the possibility of infection from the abscess. An empyema superimposed on patients already so ill may readily prove fatal.

It is our belief that the drainage of these abscesses should be carried out in two stages. We have done the entire two-stage operation under local anesthesia once, and once with ether for the first stage and novocaine for the second. An incision is made along the center of the



Fig. 4. X-ray in sitting position of CASE 3, 3½ months after perfectly well. Note that right diaphragm still remains high. limited. (X-ray by Dr. Frank Wheatley).

tenth rib, in the mid-axillary line, for a distance of two and one-half to three inches. This portion of rib is now removed and the pleural cavity is opened by an incision parallel to the rib and in the center of its bed. It may be well to pass a suture about the intercostal vessels which are exposed. In one case we cut these and found no anesthesia necessary for the second stage of the operation. The pleural cavity may contain a little straw-colored fluid, which will flow out of the wound. The diaphragm, covered by its layer of pleura, presents in the wound a close approximation to the cut parietal pleura. The borders of the incision in the parietal pleura are now sutured to the diaphragm with a continuous catgut suture. Sterile vaseline is put into the wound and a dry sterile dressing applied. This completes the first stage of the operation. The operator may, before leaving the wound, insert a needle through the diaphragm to locate the abscess, if he so desires. It is better, however, to leave the abscess entirely alone for forty-eight hours after the first stage and thus permit the pleural cavity to be fully walled off by adhesions. The second stage of the operation is relatively simple. Under local anesthesia, unless the intercostal nerve has been cut and the area rendered insensible, an incision is made in the diaphragm parallel to the incision in the parietal pleura.

operation. Wounds now entirely healed and patient feels perfectly well. By fluoroscope the excursion of right diaphragm is still very

The edges are retracted and a finger inserted in the direction of the abscess will shortly disclose the presence of pus. A large rubber tube is inserted and held in place with a suture through the skin or fascia.

It is advisable to continue this tube drain for a week or more in large-sized abscesses, and to replace it gradually with rubber dam. Too hasty withdrawal of the tube may result in a secondary local collection of pus.

With this method of drainage, the temperature has rapidly come down to normal in our cases and has remained there. We have had no difficulty from bleeding from the intercostal vessels or from necrosis of the cut rib. We believe that the two-stage operation is safer than the one-stage procedure because it reduces to a minimum the chance of empyema.

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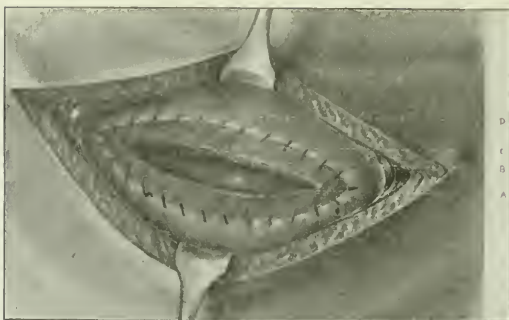


FIG. 5. Drawing showing relations at close of second stage of operation. At first stage of operation the rib is resected and the parietal pleura (d) is sutured to the visceral pleura (c). The second stage of the operation consists of incising diaphragm (b) and draining pus above liver (a). Compare this drawing with Fig. 1, to demonstrate the relations of pleura to abscess.

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CLINICAL NOTES ON THE DIAGNOSIS AND TREATMENT OF GALL-BLADDER DISEASE.*

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THE types of pain which can occur in gall-bladder disease are numerous, varying from the typical severe colic, which is referred in a characteristic way, to a very moderate localized and constant pain. Between these two types there are all degrees of variation.

With a fairly normal gall-bladder containing numerous very small stones, the degree of pain is often almost in proportion to the size of the stones, the very small stones of the size of bird-shot passing through the ducts with pain of only the slightest intensity and of short duration, while stones which are too large to pass the cystic duct may be of proper size to become wedged in the pelvis of the gall-bladder and produce pain of the typical colicky character. It is our opinion that the typical colicky pain is more prone to occur in a patient whose gall-bladder walls are but little involved pathologically.

It is in the old gall-bladders whose walls are thickened from long-standing cholecystitis that the pain of constant type is prone to occur. In this type of gall-bladder disease, there is frequently obstruction in the cystic duct as the result of either stone or exudate and the gall-bladder, distended and thick-walled, contains at times purulent material and at other times merely thick, viscid mucus unstained or only faintly stained with bile, in either case with or without the presence of stones. It is in this type that the pain is apt to be of the constant and persistent variety.

The severity of the pain and, at times, the suddenness of relief have been significant points in the history associated with this disease, sudden relief of colicky pain indicating the slipping back of the stone from the pelvis of the gall-bladder.

Upon the history of soreness over the gall-bladder region after the pain has ceased we

have also come to depend as being quite indicative of the presence of this disease.

The location of the pain and tenderness has been atypical in many cases,—sometimes in the right lower quadrant with a prolapsed liver, at times to the left of the midline, although in these cases the gall-bladder was demonstrated to be in its normal location. There have been several cases, also in which the pain and tenderness have been located so far out to the right as to be almost in the loin. Unlike the above cases, these gall-bladders have been demonstrated at operation to be located far out to the right where the pain and tenderness existed.

As to the reference of pain, there has been but little consistency. In many cases the pain has not been referred at all; in others it has been referred to the left shoulder; in many, straight through to the back, and in the remainder, typically to the right shoulder.

In cases operated early, before the attacks have become frequent, the past history usually contains the story of the occurrence of acute indigestion. It is surprising how often this diagnosis is still made.

The occurrence of jaundice is found in the past histories of those cases where the common duct is involved in only a small percentage of all cases. In our opinion it is desirable that cases should be operated upon, if possible, before jaundice occurs, inasmuch as its presence indicates in every instance one of two very undesirable features: stone in the common duct or infection spreading to the common duct.

Tenderness has been found to vary according to the relation of time of examination to time of attack. Several cases, however, have failed to show tenderness, even immediately after an attack, probably because of the fact that the attacks were largely due to mechanical obstruction without attendant infection.

The diagnostic value of tenderness, unless well marked and definitely demonstrable, is materially modified by the fact that some gall-bladders are located high under a shelving edge of the liver, making palpation difficult and uncertain, as well as by the fact that deep palpation elicits tenderness in many patients in whom no lesion can be demonstrated.

In inflammatory lesions of the gall-bladder, spasm is remarkably often absent—even in those lesions which verge upon gangrene. Likewise marked reactions of temperature are strikingly rare in a definite number of cases, this factor being dependent, of course, upon the degree of cholecystitis present.

X-ray in our opinion is of value only as positive evidence. We are unable to state in what percentage of cases the shadow of the stones has been demonstrated, but we have had a sufficient number of undemonstrated cases to make us willing to operate on those cases with definite histories but negative x-ray findings.

We have published our views as to the value of inferential x-ray evidence in gall-bladder

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disease such as demonstrable gall-bladder, flattening of the duodenum and fixation of the duodenum to the right. We believe that operation should be urged with such evidence, not upon the basis of the x-ray findings but upon the clinical history and findings, and that x-ray findings of the above sort are of value only as corroborative evidence and should never in themselves be considered decisive factors in favor of operation.

We therefore feel that the only x-ray evidence which in itself is diagnostically dependable is the definitely demonstrable shadow of the stone upon the plate, and by this we mean that the shadow or shadows must be of sufficient clearness that we ourselves can see them.

Regarding the method of diagnosis by means of the duodenal tube, based upon the findings of Meltzer that the introduction of magnesium sulphate into the duodenum produces relaxation of the sphincter of Oddi, the sphincter at the junction of the common duct, and also contraction of the gall-bladder (law of contrary innervation), we have very marked reservations.

The method consists in the introduction of the duodenal tube, care being taken that teeth are brushed, the mouth cleansed, and the throat gargled with an antiseptic, and the instillation of 50 c.c. of 33 1-3 per cent. magnesium sulphate, collections of bile being made from time to time. A microscopic study of this material is made. The first bile, light yellow in color, is considered common duct bile; the second, darker and more viscid, gall-bladder bile; the third, thin and yellow, fresh liver bile.

As a method of diagnosis, certainly in severe cases, we feel that the possibility of error, both in obtaining bile and interpreting the evidence thus obtained, is so great as to render it of value only as confirmatory data. It is our feeling that we would not hesitate to proceed surgically in spite of negative evidence of this character, clinical signs being present; while we would hesitate to proceed surgically upon positive evidence of this type, clinical signs of convincing character being absent.

The medical treatment of gallstones today, except in those patients who are too old or too weak for surgery, has very few surviving adherents in this country. Its popularity is probably still retained to some degree in Europe, where the enthusiasm for Spa treatment is very much greater than in this country. All measures of this nature must of course be directed largely to increasing elimination and lessening the burden of digestion, and should not be aimed directly at the stones or the pathological process within the bile passages secondary to them. An exception to this, of course, is the so-called internal drainage spoken of above, under the head of diagnosis. We consider this method even less adequate as a therapeutic measure than as a diagnostic measure. We be-

lieve that the amount of drainage accomplished is uncertain, and that even though the ducts be drained, an infected gall-bladder may be and usually is present, entirely undrained and menacing the life of the patient by the possibility of rupture or sepsis.

If it be accepted, then, that operative measures are in general indicated in gall-bladder disease, several important queries at once arise. First, should we advise operation for quiescent gallstones discovered in the course of other x-ray examinations? To this query we reply affirmatively. We urge their removal even though no other operative measure is contemplated, first, because it has been impressed upon us in our experience that gallstones often remain quiescent throughout middle life only to produce symptoms at an age when the individual is a very poor operative risk; second, because we are convinced that gallstones which are sometimes considered quiescent are often responsible for mild but persistent digestive disturbances without definite attacks of gallstone colic. The fact that carcinoma of the gall-bladder occurs but rarely in gall-bladders not containing gallstones adds, we believe, a further argument to the logical indications for the removal of gallstones. Furthermore, we believe that operation should be urged in cases of quiescent gallstones, first, because mild or acute pancreatitis is at all times a distinct possibility in the presence of gallstones; secondly, because common duct stone with its decided increase in mortality rate over stones in the gall-bladder is always a possibility; and finally, because of the danger of cholangitis with its usually fatal outcome.

The second query which arises is, should we advise operation during the attack, or should operation be deferred until the attack has subsided? We believe that immediate operation should be urged, first, in those early cases (largely mechanical in nature) where there have been but few previous attacks, where a fairly normal gall-bladder is presumed to exist, and where there is no evidence of infection, such as temperature and white blood count reactions; and, secondly, in those cases in which an attack is complicated with acute cholecystitis, particularly with high fever.

In the first group we urge immediate operation because the problem is largely a mechanical one, uncomplicated by infection. In these cases relief from suffering can be given the patient at once, with no added danger, and the possibility of a stone making its way into the common duct and necessitating the further procedure of choledochectomy is diminished.

In the second group of cases we urge immediate operation because with cholecystitis it is impossible to prophesy whether the process will go on to resolution or progress to slough and gangrene of the gall-bladder or infection of the ducts.

In the less severe type (showing mild infection with moderate temperature reaction) of long standing and with repeated attacks, we feel that operation may with safety be deferred until cholecystectomy can be done upon a gall-bladder whose walls and particularly whose cystic duct and periductile tissue present less induration and oedematous tissue, thus permitting more accurate dissection with less danger of disseminating infection and later crippling adhesions.

Common and hepatic duct stones we feel should be operated at once, unless contraindication exists in the form of obstructive jaundice, in which emergency every effort should be directed toward reducing the coagulation time to its lowest possible point. Operation should be undertaken in these cases before the occurrence of cholangitis and before the occurrence of cholangitis with its unfavorable post-operative prognosis.

We have seen the coagulation time in obstructive jaundice as high as thirty-six minutes. In obstructive jaundice we do not believe that it is justifiable to operate without attempting materially to lower the coagulation time. We have recently seen a fatal outcome due to post-operative hemorrhage in two cases of this character operated elsewhere than in our clinic, no attempt having been made preoperatively to reduce the coagulation time by suitable measures.

We consider a coagulation time of ten minutes or under within the limits of safety. Calcium has for many years been employed as a measure suitable for increasing the coagulability of the blood and probably in most instances has had little if any value in this respect except in the condition of obstructive jaundice, where it appears to have real value, producing a definite and demonstrable diminution in the coagulation time. We have used it in the form of calcium lactate by mouth and, where its continued use has produced gastric disturbance, by rectum. Given by mouth or by rectum, large doses are necessary to become effective,—twenty to thirty grains three times a day. It has been our experience that when the drop in coagulation time has been accomplished, it may be of but very short duration and operation should be undertaken at once.

We have recently had prepared for us by Hynson, Westcott and Company 5 c. c. tubes of sterile 10 per cent. calcium chloride solution which may be given intravenously, by means of which lowering of the coagulation time may be accomplished much more quickly and without the nausea which frequently attends the administration of large doses of calcium by mouth. It should be given once a day for three days, together with calcium lactate by mouth, if tolerated.

The operative technique of cholecystectomy needs no elucidation, in our opinion. We do, however, feel that the decision as to whether we should employ cholecystectomy or chole-

cystostomy in certain cases is a very important one, and we have formulated the rule that we do cholecystostomy in those cases of gall-bladder disease in which the gall-bladder is too good or too bad to take out, and in certain obese individuals in which the difficulties of the procedure of cholecystectomy make its risks outweigh the gain to be attained. The first class are those rare cases in which a single smooth stone exists in a gall-bladder quite normal to inspection and palpation, and even in such cases we frequently do cholecystectomy, except in the corpulent individuals above mentioned.

We hold particularly firm convictions concerning the indication for preliminary cholecystostomy in the latter group—that is, in the gangrenous gall-bladder too bad to take out—for the reason that cholecystectomy in a thick-walled and acutely infected gall-bladder (we do not refer to the thick-walled and distended gall-bladder without infection) presents not only technical difficulties of removal, but serious possibilities of immediate and remote post-operative complications. It is in this type of case that removal of the gall-bladder is often accomplished with difficulty, removal being many times possible only by dissection of the indurated bladder from the fundus toward the cystic duct and accompanied often by considerable bleeding and rupture of the gall-bladder with dissemination of infection. It is in this type of case that oozing surfaces are often left in the bed of the liver previously occupied by the gall-bladder, requiring the introduction of gauze packing to control them. These are conditions favoring distinctly the occurrence of an infected hematoma in the right upper quadrant as an immediate complication, and crippling peripyloric adhesions as a remote post-operative complication, both of which dangers may be obviated in this type of case by preliminary cholecystostomy.

We have therefore based our opinion as to the removability of the gall-bladder upon the probable degree of post-operative infection in the defect left by its removal and the probable amount of peripyloric adhesions.

Our decision as to whether the removal of the gall-bladder (that procedure having been decided upon) shall be accomplished from the cystic duct upwards or from the fundus downwards has always been based upon the adequacy of exposure of the cystic duct at its junction with the common duct. We decidedly prefer and advocate the former procedure, but from our experience have firmly fixed convictions that the primary dissection and ligation of the cystic duct should never be attempted except where very adequate exposure of that structure, of the common duct, and of the cystic artery is possible. In all cases where this is impossible, we feel sure that dissection from the fundus downward until the gall-bladder hangs by the cystic duct is infinitely safer, both as regards preservation of the intactness of the common

duct and control of the cystic artery. It is also our firm conviction that the cystic duct should never be cut and tied until it has been carefully wiped down to the common duct and the latter structure carefully identified as outside of the grasp of the right angle clamps.

Regarding exposure of the cystic duct and cystic artery, we wish to call attention to the frequent unusual location and relation of these structures. We have several times seen a cystic duct lying parallel with the common duct and emptying into that structure not at the usual location but well down and close to where the common duct enters the duodenum. In such a case we removed a stone from the parallel-lying cystic duct, thinking it to be the common duct, and were greatly distressed to be unable to pass a probe up into the hepatic duct until further dissection revealed the fact that the stone had been removed from an elongated cystic duct and that the common and hepatic ducts had not been opened at all.

We have seen the cystic artery come from behind the hepatic duct. We have seen it, of course, in its usual location close to the cystic duct and at times at a distance from the cystic duct where it is overlooked and easily injured. In this connection we know of no operative complication that is more trying than a torn cystic artery in a deep field, difficult of exposure and rapidly filling with blood each time after being wiped out.

As to common duct drainage, we have no rule except to explore all large common ducts and to pass a probe through any of which we have the slightest doubt. A very good procedure we have found is to pass a catheter through the common duct until it enters the duodenum. Salt solution is then injected through the catheter and if it passes the sphincter into the duodenum, demonstrating the absence of obstruction in the duct, water will not return around the catheter; if it does not pass into the duodenum, water will pass back around the catheter.

We do not approve of the closure of the abdomen without drainage. We admit having had cases in which the ligature has come off the cystic duct even after the most painstaking application. We admit having left a stone in the common duct after removal of the gall-bladder, and as long as such possibilities may arise (they do in every surgeon's experience), and we see no way to be certain that they may not arise again, we shall continue to institute drainage following cholecystectomy.

It has been our experience to have had late post-operative opening of upper abdominal wounds in a few cases in which the wound had undoubtedly been the site of a low grade infection of sufficient extent to interfere with healing. While practically all of the cases recover uninterruptedly with secondary suture, we feel that the possibility of the occurrence of this condition may be diminished by the intro-

duction of a considerable number of through and through rubber-covered stay stitches, together with late removal of the stitches and wide supporting straps.

The foregoing conclusions were reached from an investigation of one hundred and twenty-six gallstone cases. This group of cases was selected from our private records rather than from our public hospital service because we anticipated more complete, adequate and numerous answers to our questionnaire.

Of the records of 126 gall-bladder cases studied:

64 of 85 cases submitted to cholecystectomy were traced.

Of this number 51, or 80%, reported themselves as cured.

6, or 9.3%, reported themselves improved.

3, or 4.5%, reported themselves as no better.

4, or 6.2%, died.

28 of 41 cases submitted to cholecystostomy were traced.

16, or 61%, reported themselves cured.

7, or 27%, reported themselves improved, but with symptoms.

2, or 7.7%, were operated again.

3, or 11.5%, died.

11 of 15 cases submitted to choledochostomy for common or hepatic duct stone were traced.

8, or 72%, were cured.

2, or 18%, were improved, but with symptoms.

1, or 9.9%, died.

CONCLUSIONS.

A careful history is usually the most dependable feature in the diagnosis of gallstones.

There are no harmless gallstones and they should be removed as soon as diagnosed.

Cholecystectomy is in a great majority of cases the operation of choice, but is not universally applicable.

Obstructive jaundice usually demands delay and the use of measures to lower coagulation time.

Every dilated common duct and every common duct suspected of harboring a stone should be thoroughly explored.

Every case of cholangitis should have the common duct drained.

All successful bile passage surgery is dependent upon a long incision and adequate exposure.

DR. W. W. KEEN'S ADDRESS ON THE OCCASION OF THE BESTOWAL OF THE BIGELOW MEDAL.

This valuable and interesting contribution to medical literature should be read by every physician and surgeon. A few copies are available and may be secured by applying to the BOSTON MEDICAL AND SURGICAL JOURNAL.

THE TUBERCULAR INFECTION IN CHILDHOOD.

Study I.

COMPARATIVE ACTIVITY OF TUBERCULIN PREPARATIONS.

BY A. R. CUNNINGHAM, M.D., AND A. R. RACTLIFFE, BOSTON.

Work done at the Boston Dispensary children's clinic of Dr. Maynard Ladd under a grant from the Massachusetts Tuberculosis Association and initiated by Dr. Edw. O. Otis, President of the Association.

By combined methods, over 1200 children have been tested in the Boston Dispensary with tuberculins, both human and bovine, since July, 1921. Discrepancies soon appearing between the results obtained and those reported by other authors made it seem important to investigate the activity of tuberculin as prepared by different manufacturers. The tuberculins referred to in this comparative study are in each instance human O. T. This material is available from many laboratories—commercial, state, and those of some of the larger hospitals. The Massachusetts Health Department, however, does not furnish tuberculin. The Saranac Laboratory at Trudeau, N. Y., furnishes human tuberculin gratuitously, for experimental purposes, to hospitals and clinics only. The preparations generally used in testing individuals in hospital and private practice are probably those from commercial laboratories, and it seems, from personal communications, that investigative work is often carried on with preparations from state departments of health and sometimes with the Trudeau preparation. We were unable to obtain tuberculin from the New York State Laboratory and have tested no tuberculins from state health departments.

The federal public health service does not control the preparation of tuberculin designed for purely diagnostic purposes, or supply any standard with which such preparations might be compared. There is, in fact, no existing method of standardizing tuberculin which is in any way satisfactory, although various efforts have been made to evolve one. Guinea-pigs are too variable in susceptibility to tuberculin for the use of lethal units as a standard. The activity of any preparation can be ascertained only by trial upon a number of known positive persons and seems to depend chiefly upon the use of full-grown cultures of the bacilli. In a personal communication we have received the suggestion that the inferiority of some preparations may be due to the use of cultures which are not fully ripe and which are boiled too long. Preparations of tuberculin are expected to sustain ageing up to five years without considerable

loss of potency and may be kept at room temperature for the entire period.

Reasons for suspecting the activity of some tuberculins may be found not only in our own experience but in examining a few recent reports from other investigators. Using the Pirquet method, Arnfinssen¹, in 6978 public school children in Norway, obtained positive reactions in 37.8%, a figure which would be modified downward, without much doubt, were children below school age included. Sill², in 658 New York children from infancy to 13 years of age, found only 9.2% giving positive reactions. In this group there were none whose family records showed tuberculosis. Sill concludes that the incidence of the tubercular infection varies not only in different countries but in the different cities of the United States. Pirquet himself³ found 56% positive in Vienna children who were from 11 to 14 years of age. The results from different authors from the Pirquet method in children, seem to average in the vicinity of 38%, with a proportionate representation of all ages up to 14 years, but wide variations in the results obtained by different authors are, in our opinion, due largely to the use of tuberculins of inferior quality and to technique rather than to regional variations in the incidence of the infection.

In the children upon whom this study is based tuberculin was applied both by the Pirquet method and by the intracutaneous method of Mantoux, both methods being employed on each patient. For the intradermal tests a dilution of 1-250 or a dosage of approximately .1 mg. was chosen after much experimentation, as giving the highest percentage of positive reactions without any so severe as to cause ulceration. Successive tests with increasing doses would be more acceptable if the incidence of the infection was to be determined rather than the comparative activity of the tuberculins. A sample of tuberculin from a commercial laboratory was used until several hundred children of all ages had been tested. This preparation is the one later described as "No. 1." The average age of these children was 6.6 years and positive results were obtained in only 24%. The positive percentage in children of school age for comparison with the figures of Arnfinssen was 31%, and from 11 to 14 years of age 42% were positive as compared with Pirquet's 56%. These figures, representing the combined results of dermal and intradermal tests in our group, are compared with dermal results alone in the reports of the other investigators and do not seem to satisfy.

"No. 1" was thereupon discontinued and another commercial preparation was employed in testing a second group of children. This second tuberculin is designated "No. 2." The age average of this group was 6.8 years and the percentage of positive reactions rose to 36.2% but still seemed too low. From the ages 5 to 14 the

positive percentage was 45.5% and from 11 to 14 years it was 58.1%.

A third group was tested with tuberculin "No. 3." The average age was 7.5 years and the percentage of positive reactions was 47.1%. From 5 years to 14 years inclusive this percentage was 50.9% and from 11 to 14 years, 67.8%. This sample of tuberculin was that from the Saranac Laboratory.

TABLE 1.

method	av. age	% pos.	0-13 yrs.	13 yrs.	5-14 yrs.	11-14 yrs.
Armstrong Pirquet	-	-	-	-	37.8%	-
Still	-	-	9.2%	-	-	-
Pirquet	-	-	-	-	-	56.0%
"No. 1" combined	6.6 yrs.	24.0%	-	31.0%	42.0%	-
"No. 2"	6.8 "	36.2%	-	45.5%	58.1%	-
"No. 3"	7.5 "	47.1%	-	50.9%	67.8%	-

Hamburger³ and other authors believe that tuberculin reactivity is influenced by the season, the author quoted stating that in the fall, children with out-spoken tuberculosis gave positive results to the delicate sub-dermal test only with relatively large doses. In consideration of this and the fact that tuberculosis is more frequent in the spring than in the fall, he believes that susceptibility to tuberculosis is greater in the spring. Without accepting these conclusions it is of interest that our worst results—those obtained with tuberculin "No. 1"—were obtained during the period from mid-July to mid-winter, while the ensuing months until July the following year were applied first to the use of "No. 2" and then to "No. 3." Consequently it was felt that simultaneous tests would be necessary in fairness to the preparations under consideration. It was also desirable to broaden the scope of the investigation to include samples of tuberculin from other manufacturers, and three more commercial tuberculins were obtained for this purpose, making six in all.

In this part of the work the Pirquet test alone was used; it was chosen because it seemed to offer more assurance that each patient would receive an equal dose of each tuberculin than would be afforded by the intracutaneous technique. The simultaneous tests were performed upon 25 adults and 3 children whose reactions were known to be positive; they were examined at the end of 24 and 48 hours and the reactions were graded from the least, which could be described as definitely positive—grade 1—to the most severe, which was called grade 4. By thus grading the severity of the reactions a more accurate comparison of tuberculin activity could be secured than if positive and negative reactions alone were considered. The results are indicated in Table 2. It is seen that "No. 3" tuberculin—the Saranac preparation—distinctly exceeds any of the five commercial products not only in the number of actual positives but in the severity of the reactions produced. The other important fact brought out by this table is that the commercial products studied vary

greatly from each other in activity and are without exception inferior preparations.

TABLE 2

Case	24 hrs.						48 hrs.					
	Tuberculin Nos.						Tuberculin Nos.					
1	1	0	1	2	1	1	1	0	1	1	1	1
2	0	1	2	2	1	1	0	2	2	1	0	1
3	0	0	2	1	1	0	0	0	0	0	0	0
4	2	2	2	2	2	2	2	2	1	1	2	1
5	2	1	2	2	1	1	8	3	2	1	1	2
6	1	1	1	2	1	1	1	1	1	2	1	1
7	1	2	4	1	1	2	1	2	3	1	2	2
8	1	2	2	0	1	1	1	2	2	1	2	1
9	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	2	2	1	1	2
11	0	1	0	1	0	0	0	1	1	1	1	0
12	1	0	1	1	1	1	1	0	1	1	1	1
13	0	2	2	1	0	1	2	3	3	s	1	2
14	1	2	1	2	2	2	2	2	2	1	2	2
15	-	-	-	-	-	-	0	1	2	0	0	2
16	2	1	3	1	2	1	2	1	3	1	2	1
17	0	0	s	0	0	0	1	1	2	1	1	1
18	1	1	2	1	2	s	2	2	2	1	2	2
19	s	s	2	1	s	s	0	0	2	2	0	0
20	0	0	s	0	0	s	0	0	0	0	0	0
21	0	1	2	1	s	0	0	1	2	0	1	0
22	1	0	1	1	s	1	0	0	1	1	1	0
23	0	1	1	0	1	1	0	1	1	0	1	1
24	1	1	2	1	1	1	2	2	2	1	2	2
25	0	0	s	0	0	0	0	0	0	0	0	0
26	3	2	4	1	3	2	2	2	4	1	2	2
27	2	1	2	0	2	1	2	1	1	0	1	1
28	0	0	0	0	0	0	0	1	1	0	0	1
positive severity	16	15	22	20	18	18	16	21	25	19	21	21
score	22	24	41	26	25	22	24	30	45	21	29	24

The findings indicate that the tuberculins studied, with the exception of "No. 3," are not suitable for use in determining the presence of the tubercular infection by any method whatever and that their use in previous investigations may be a cause of the lack of uniformity which appears in the results.

REFERENCES.

- 1 Norsk Mag. f. Laege Vidensk., Vol. 5, 508, 1916.
- 2 N. Y. Med. Jour., Vol. 107, 1018, 1918.
- 3 Am. Jour. Dis. of Children, 1922, Vol. 23, 481.

Study II.

INCIDENCE ACCORDING TO TUBERCULIN TESTS AND METHODS OF APPLYING TUBERCULIN.

Not too widely recognized is the fact that in living subjects, the absence of infection with the tubercle bacillus can be conclusively demonstrated only with difficulty. By single or repeated Pirquet tests which are the basis of so many attempts to determine the incidence of the infection, it appears to be possible to detect tuberculosis in slightly over half of all cases where the infection has taken place. By the subcutaneous use of tuberculin in successive injections of increasing dosage, this possibility of detection is evidently greatly increased. Ac-

cording to Hamburger¹ the reception of a dose of 1 mg. of tuberculin by this method, without a reaction, may be taken as nearly absolute evidence that the child is free from tuberculosis. According to the same author this statement has been confirmed by Reuschel, Nothmann, Pirquet, and Rominger. But this amount cannot be safely administered without first obtaining negative responses to successive smaller doses.

This method is satisfactory in individual cases where the need for diagnosis is a matter of relative urgency, although time consuming, but, requiring as a maximum, four injections at intervals of 48 hours and daily observation for a period as long as 8 days; the determination of the incidence of the tubercular infection in ambulatory dispensary patients would be attended by the greatest difficulty, although a large number of patients might be observed through one or two of the tests. For such ambulatory and comparatively irresponsible patients there appears to be no method of making this determination which is reliable and at the same time practicable. It is desirable that a method be devised by means of which a test may be completed at most in 48 hours and with a small percentage of error.

Cutaneous applications of tuberculin, whether by Pirquet's technique, or modifications of this, or by innunction, and intracutaneous injections of tuberculin seem to depend for their result upon a cellular reaction. The febrile disturbance resulting from the subcutaneous injection of tuberculin in an infected person indicates a probable humoral reaction. If the body fluids contain substances which, by concentration or by accessibility, react more sharply or more consistently to tuberculin than do the epidermal cells, then one cannot expect, by changes of technique alone, to produce a dermal or intradermal method which will be 100% efficient. The essential difficulty of the dermal method, however, seems more probably to be that of obtaining satisfactory contact between the tuberculin and the more actively sensitive cells of the skin. If the intradermal application, on the other hand, proves to be really less effective than subcutaneous injection, as Hamburger suggests, the authors believe that irregular dosage, due to difficulty in controlling the children during the injection, and leakage of the tuberculin from the needle hole, may account for the deficiency.

Having no feasible method of determining the true incidence of the tubercular infection in our dispensary children, the value of this study and its design lies in demonstrating to what extent care of technique aided by a combination of dermal and intradermal methods and selection of tuberculin may give value to the results of tests performed at one sitting and completed in one return visit after 48 hours. The obvious reason for selecting these two methods of application, and not the subdermal method, was the fact that elevations of temperature could not

easily be ascertained in these children and would unduly vex their parents.

Although over 1200 children were tested with tuberculin in preliminary work and in this and other studies, the results which we are now reporting are those obtained from only the last 346 whose tests were done under the most favorable conditions. In all these we had the benefit of a tuberculin of high activity. Two Pirquet and two intradermal applications were made upon each child. Full strength human O. T. was used in the Pirquet scarifications which were made with the usual "borer" through the drop of tuberculin, a modification which gave distinctly better results than were obtained by applying the tuberculin after the scarifications were made. For intradermal testing it was necessary in preliminary work to determine a dilution which would give a maximum number of positive reactions, without at the same time causing ulcerations or other undesirable results. For this purpose dilutions in normal salt solution of 1:1000, 1:500, 1:250 and 1:100 were tested. Dilutions of 1:1000 were found to be practically inert. Dilutions of 1:500 produced about 3% fewer reactions than those of 1:250, and dilutions of 1:100 only about 2% more than those of 1:250. In the 71 children tested with 1:100 tuberculin intradermally, however, two reacted so severely that it was thought undesirable to continue this dilution although actual ulceration did not result. These trials were carried out with a preparation of tuberculin which was later found to be one of the weakest of the commercial tuberculins. The suppositions would therefore be that dilutions stronger than 1:250 of an active preparation would be likely to cause severe reactions and that there might be greater differences in percentages between the results of the different dilutions. The 1:250 dilution was thereafter used in a great many cases and with the most active tuberculin, never causing reactions so severe as to necrose the epithelium. The calculated dosage of each dilution in the order named was .02 mg., .04 mg., .08 mg., and .2 mg. Inaccuracy is inevitable in the dosage chiefly because some children will not stay quiet and partly because of leakage through the punctured epithelium after injection.

The human tuberculin used was that furnished by the Saranae laboratories at Trudeau, N. Y., which we have shown to be an active and satisfactory preparation. In addition, one test was made with bovine tuberculin from the commercial laboratory which supplied the previously designated "No. 2" human O. T. This bovine test was an intracutaneous injection of the same dosage as that done with human O. T. Thus four simultaneous tests were performed upon each child: two Pirquet tests with human O. T., one intradermal with O. T. 1:250 (.08 mg.), and one intradermal of bovine tuberculin similarly diluted and averaging .08 mg.

per dose. The tests were examined after an interval of 48 hours.

The 346 children gave positive reactions in 57.1% and the average age was 8.1 years. The average age is, we believe, an excellent aid to the comparison of results in children and might well be included in all such reports as this. It is calculated in this study as the total number of years represented, divided by the total number of children. Those who were below 1 year of age were reckoned as 0 years. For example, if a group contained 10 children under 1 year old, 10 who were 3 years old, 10 who were 5 years and 10 who were 7 years old, the total ages would be 150 and the average age would be $150 \div 40$ or 3.7 years. The percentage of positive reactions obtained for each year of life is seen in Table 1.

0-1 yrs. 25%	5-6 yrs. 62%	10-11 yrs. 84%
1-2 yrs. 54%	6-7 yrs. 50%	11-12 yrs. 60%
2-3 yrs. 60%	7-8 yrs. 66%	12-13 yrs. 61%
3-4 yrs. 54%	8-9 yrs. 60%	13-14 yrs. 62%
4-5 yrs. 33%	9-10 yrs. 70%	14-15 yrs. 87%

The irregularities of progression from year to year which are indicated in this table are without doubt due to the small numbers of each age represented. Comparisons may be made between these figures and those of Hamburger, who obtained positive reactions in 95% of children in Vienna between the ages of 11 and 14 years, by successive subcutaneous injections of increasing dosage. Pirquet's own figures for these ages, as quoted by Hamburger, were only 56%. From Table 1 there appears to be a disproportionately high rate of infection during the first three or four years of life, at least 50% of the children having then become infected, notwithstanding the deficiencies of the tests employed.

The results of these tests indicate that a combination of the cutaneous method of Pirquet and the intracutaneous method of Mantoux may be used to advantage in groups of patients whom it is desirable to test at one sitting. By further refinement of such a combination we believe it possible to determine the incidence of the infection to within 20% of actualities as indicated by the more cumbersome method of Hamburger. Our bovine tuberculin was a commercial product. The human O. T. prepared by the same house was one of the best of the commercial preparations but distinctly inferior to that from Trudeau. Although we did not test the comparative activities of different bovine tuberculins, it is presumable that a more active preparation than ours might be used with improvement upon our results. About 10% of the reactions included in Table 1 were due to this bovine tuberculin alone, thus representing the importance of using this substance in tests of this sort.

The Pirquet method using human O. T. alone

would have demonstrated 85% of all the cases of infection detected by this combined method and is distinctly a more effective test when properly performed than the intradermal method with the dilution and dosage used by us. We would not recommend an initial injection of a greater dose than .1 mg. of an active tuberculin. The maximum initial dosage of the Trudeau preparation and the one consistently used was only .08 mg., yet the wheals produced by this amount were occasionally severe. At least 15% should be added to the results from Pirquet's test by this additional injection of .1 mg. of human and bovine tuberculin intradermally.

REFERENCE.

1 Hamburger: Am. Jour. Dis. of Children, Vol. 23, 481.

Study III.

INCIDENCE OF CERVICAL, EPITROCHLEAR AND PERIBRONCHIAL ADENITIS.

In the course of observations to determine the incidence of the tubercular infection of children of the dispensary class in Boston, we were led by the reputed susceptibility of the lymphatic system at this age to attempt a short comparative study of glandular enlargements in patients giving positive and negative reactions to tuberculin. Beginning this study late in the course of our other work, only 165 patients were accumulated who were examined particularly for this purpose. These children were not selected except that all were older than two years. The examinations of the glands were made in every instance before the results of the skin tests were known.

The lymphatic structures selected for this study were the anterior cervical, epitrochlear and peribronchial glands. The condition of the anterior cervical group was noted because of their liability to scrofula and because of the doubtful frequency of tubercular lesions and tubercular pathways in and through the tonsils. Enlargement of the epitrochlears is easy of detection and is always an interesting finding, especially since a luetic significance has become attached to such enlargement. The examination of these glands was undertaken to determine the influence, if any, of the tubercular infection upon the lymphatic system as a whole. The examination of the peribronchial gland group was, of course, directly indicated by their reputed relation to early tuberculosis.

Although the number of cases so examined is smaller than is desirable, they were those whose tuberculin tests were performed under the most favorable circumstances, using the very active tuberculin furnished us by Dr. E. R. Baldwin of the Saranac Laboratory. Tests with

bovine tuberculin from a commercial laboratory were also performed and the application of both tuberculins was done by the Pirquet method and by the intracutaneous method in each patient, about .1 mg. being the dose received by injection. It happened that of the 165 children so examined, 88 gave positive reactions and the incidence of the enlargement of the three groups of glands in these children is compared with that found in the 77 patients not reacting to tuberculin.

As was expected the anterior cervical glands were palpable in more than half of all the children. The frequency of the enlargement was practically the same whether the tuberculin reactions were positive or negative—57.9% in the positive cases and 58.4% in those not reacting. Except for one consideration this result is rather strong evidence against the frequently expressed view that the tonsils serve as a portal of entry for the bacillus of tuberculosis. The one factor which weakens this conclusion is the fact that all of our cases were taken from the medical clinic and were thus deficient in as many cases of scrofula of the neck as would appear in 165 children taken equally from the medical and surgical clinics. We do not believe that this deficiency seriously alters the significance of our result and we are to report later some strongly corroborative evidence from the histologic examination of a large number of tonsils.

Our examination of the incidence of epitrochlear glandular enlargement disclosed the interesting fact that 30.9% of children of our dispensary class in Boston show this enlargement. It would be gratifying to learn just what influences act to stimulate the enlargement of these glands, but it is hardly conceivable that the cause was luetic in more than a small number of these and we conclude that palpable epitrochlears is a common finding and more often due to other causes than syphilis.

Of the 88 children who reacted to tuberculin 31.8% had palpable epitrochlears, and of the 77 who failed to react, 30% showed enlargement of these glands. This comparison suggests that the primary tubercular infection in children is not a frequent cause of general glandular enlargement.

It has often been pointed out that tuberculosis is an important cause of peribronchial glandular enlargement. In examining patients for this condition we depended entirely upon the presence or absence of D'Espine's sign and the examination was made in each instance by the same person, thus excluding variations in interpretation which would otherwise be likely to occur. The children giving positive tuberculin reactions showed a positive D'Espine in 48.8% of the 88 cases, while those who did not react showed enlargement of these glands in only 33.7% and it must be remembered that this contrast would probably be more marked if more

intensive tests with tuberculin were carried out. Our findings, therefore, are corroboratory of the tubercular significance of a positive D'Espine's sign.

A PAINLESS, LITTLE LUMP ONLY AS BIG AS THE TIP OF HER LITTLE FINGER AND YET, IF NEGLECTED, IT WOULD SURELY HAVE KILLED HER, AFTER MONTHS OF TERRIBLE SUFFERING.

BY W. W. KEEN, M.D., PHILADELPHIA,

Emeritus Professor of Surgery, Jefferson Medical College.

This is the brief and happy story of a wise woman who sought and immediately followed advice in a case of malignant cancer of the breast.

A personal friend, a woman of fifty, rather stout, with a considerable layer of fat under the skin which obscured the evidence of any lump, while bathing discovered a lump, only as large as the end of her little finger, on the outside of the left breast, near the armpit. Three days later she consulted me.

On examination, at first, as it was so small and embedded in fatty tissue, I found difficulty in discovering it. As I had retired from practice a few years before, I referred her to one of my surgical friends in her own city. He operated upon her as soon as arrangements could be made. He first made an incision over this little and apparently trifling lump, cut it out and had an immediate microscopic examination made. Within a few minutes the microscopist reported that it was a malignant form of cancer, which required an immediate, complete operation. At once he prolonged his incision and completed the operation, removing the breast and cleaning out the tissues from the armpit, including all the glands, and also removing any of the muscular tissues that could possibly be involved. The patient made an uninterrupted recovery, in a few days.

This case illustrates the good sense of this woman. She had not had a single twinge of pain in this lump, but the moment she found it, she sought surgical advice and followed it.

In my opinion her future is secure. The lump was so small and had evidently been there so short a time, that there was no discoverable enlargement of the glands in her armpit. I think she has just as good a prospect of completing her expectation of life as any other healthy woman of her own age.

If only every woman would act as promptly, regardless of the absence of pain, how many a tragedy would be avoided!

A few reprints of *The Treatment of Diabetes Mellitus*, by Elliott P. Joslin (Bos. Med. and Surg. Jour., June 22, 1922), are available and may be procured by applying at this office. Price 50c.

New England Hospital Association.

ANNUAL MEETING MAY 17 AND 18, 1922,
AT BOSTON MEDICAL LIBRARY.

(Continued from page 607)

THE NURSES' HOME.

BY MISS GRACE HASKELL, SUPERINTENDENT OF
WENTWORTH HOSPITAL, DOVER, N. H.

WHEN Dr. Howland wrote asking me for a ten minute paper on any one of six or eight subjects, I glanced over the list hastily and thought I might be able to say something about a Home for Nurses in reference to the small hospital.

Our New England States are full of small hospitals from fifteen to one hundred beds capacity. It is very safe to say that in those hospitals under thirty beds and many over that number there has been no real provision for the housing of the nurses connected with the institutions. Upon investigation it would be found that the pupils, if any, the graduate nurses and the executive force are to be found in the same building with the patients, usually on the upper floor or in rooms adjoining patients' rooms. When this arrangement exists,—and it exists often enough to be the rule, and not the exception,—there is absolutely no freedom of speech or conduct possible for the personnel of the hospital. The wonder is with this arrangement that small hospitals ever have pupil nurses, and the question arises, ought they to have them under these conditions? The dining-room is never adequate. The meals are hurried; nurses do not get away from the hospital atmosphere during the twenty-four hours, and the accident cases, the emergency cases and the obstetrical cases are always in her immediate background. Inevitably she must leave the hospital for the change and recreation which she should be able to get by going off duty. She cannot entertain her friends because there is no place provided, and if a young man friend, she probably spends her evening going to the movies and walking back afterward to the place which should be home, and which only offers an opportunity for her to eat, work and sleep. I am speaking now of the small hospital as I have repeatedly seen it. Fortunately, the past ten years have seen a great awakening in hospital boards and executives in regard to the housing of the nurse and the manner in which she spends her time when off duty. It has been demonstrated beyond dispute that the hospital, small or large, that gives its nurses proper living conditions has more pupil nurses in proportion than those who do not. The young woman of today is wise in her generation, flapper though she be. She selects her training school with a very careful idea of its advantages and a keen observation of the home she is to live in for three years or less. Just

what should we give our nurses for a home? At least, it should be as good as that she came from. Most of the young women in training schools come from the great middle class that is the backbone of the nation. The parents wish their children to have the things which they themselves, perhaps, had to do without. They strain every energy to put their girls through High School, and having done this they feel she is on the right road toward self-support. A girl leaves this home where she has had love, freedom of expression and a perfect equality, and, if she enters a training school, she comes to—what? We feel compelled to answer, very little love, no freedom of expression, for at least eight hours of the day, and a discipline such as she in her young life never imagined. What are we going to do for her to compensate her for the loss of her family life? This brings us directly to the housing conditions.

First, let us have a building for our nurses entirely separate. If connecting corridors are necessary, let them be long enough and the entrance to them as far from the living quarters as they can be. Give each girl her own room that there may be one place where she can "loaf and invite her soul." Have toilet and bath room facilities on every floor, adequate for the needs of the number to be served. Small tables in the dining-room where different classes can join each other three times a day and exchange a little conversation that is not shop. This room should be bright, cheerful, with a fire-place if possible, and should always be in the home. Have one large living room,—large enough for general entertainment; two or three smaller sitting rooms, making it possible for the young woman to receive her friends alone if she prefers. Give them a laundry where they are at perfect liberty to go for any amount of washing or pressing. We all know it is not possible for a hospital to take proper care of the lingerie and transparent waists that are so generally in vogue. Have the class and demonstration rooms in the home. Nurses off duty will appreciate this, and nurses on duty will enjoy the change from the hospital. Give the nurses the privilege of serving simple refreshments to their friends at least once a week. Inaugurate a tea hour from four to five daily. Musical instruments, of course, should be provided. If there are porches, have chairs enough to seat half the school at least. A tennis court and croquet ground would afford good fun and much-needed out-of-door exercise. If I had sufficient funds I am sure I would install a bowling alley.

The home should not be luxurious but comfortable; the necessities balancing; the atmosphere one of freedom without license; the rulings controlling the home as few as are compatible with the protection of the building and its occupants. A gentle woman to act as house-mother and have supervision of the necessary housework. Each home for nurses, large or

small, has its own problems. Probably student government is a good thing for the student. If it could only include the proper care of the equipment I should encourage it, but it does not because there is a lack of mature judgment as to what is good care, and very little thought as to the cost of maintenance.

If the home is owned by a city there is usually a strict accounting from time to time as to the why of this expense, and the necessity of that, and the superintendent of the hospital has that accounting to do often to a group of politicians who do not really care to be shown the facts, but only wish to talk. Our hospital is just completing a nurses' home. This hospital opened in 1906 and had built for the accommodation of the nurses a wing consisting of eleven sleeping rooms, two baths, one class and one living room. These accommodations were out-grown in two years. The hospital increased its work rapidly and at the end of ten years had grown from a thirty bed to a fifty bed hospital and by the middle of June will be an eighty-five bed hospital. For fourteen years the nurses have been moved from pillar to post, and if there is any superintendent in this audience better qualified as a furniture mover than myself, I should be very glad to meet him or her at the end of the session.

Our troubles in regard to room were ended when Mr. E. W. Rollins, a generous townsman, gave us a nurses' home as a memorial for his son's wife, Mrs. Gladys Rollins. This building is erected at the cost of \$81,000, not including equipment. We have four floors, the two upper ones devoted to sleeping, bath and small sitting rooms; the ground floor to living room, sitting rooms, dining room, serving pantry, with three or four smaller rooms for each its special use. The basement has a class and demonstration room, laboratory, dietetic kitchen, laundry, trunk and boiler room. These are for the nurses' use exclusively. The donor, the architect, the trustees, and the superintendent, have been in perfect accord since the plans were first presented and accepted. The aim of all has been to keep the building a home in as true a sense as possible. The sleeping rooms are finished in white and yellow; the bathrooms in gray marbleoid. Toilet and bath facilities are adequate to the number to be served. The dining room is in buff and white with mahogany doors, a very beautiful room with a large fireplace. The living room, a replica of that of the donor, has a very large fireplace and is beautifully lighted by four large windows and French doors. The small sitting rooms are finished in ivory and white. On either end of the home French doors lead to broad porches. The fireplaces in the living, class and dining rooms are a source of great pleasure to the nurses already. The corridors are in buff and white with mahogany. There is not one dark corner in the entire home from attic to basement. The first impression one receives on entering the home is the cheer-

fulness, which is a natural result of the color scheme.

I need not further discourse about our particular home, but I will say many of the ideas that I myself have had, have been incorporated in it and it would be impossible for any superintendent to have had a more interpretive and sympathetic architect to deal with or a more liberal, progressive Board of Trustees. The donor, a man of very large experience in business life, has co-operated, as I have before stated, with all three.

Our plan is to keep our nurses happy and we have tried to have that happiness come from within the home.

DR. HOWLAND: I am sure there is plenty to talk about on a paper of this kind. The Nurses' Home is open for discussion.

MISS HALL, Peter Bent Brigham Hospital: I should like to endorse nearly everything Miss Haskell has said, particularly the single bedrooms. To make the nurses' living quarters attractive, nothing is so much needed as small rooms in which to entertain their guests. Not enough attention is given to that in planning nurses' homes. Another thing I should like to emphasize is the proper equipment of class rooms; I think we ought to have more complete teaching rooms than we have. I want to put in a plea for adequate class rooms; not only a room for lectures, but a generous room for demonstration, with proper equipment, and a utility room connected with it, corresponding to the utility rooms in the wards, so that all articles used in teaching and in demonstration can be placed in that utility room. I think this has been worked out in some institutions; I think Miss Doherty has worked it out at Holyoke.

MISS DOHERTY: We have just had a new nurses' home, of which we had long been in need. For several years, the nurses lived in a part of the hospital. Our hospital has 125 beds, and we have had the disadvantage of having no nurses' home for many years. It was only this year that we succeeded in getting a nurses' home, and already the applications for entering the training school have increased. I should like to offer that as the solution of the problem of the shortage of nurses. We think that it is going to be a great drawing card in securing applicants. Our home is a fire-proof structure, of three stories, and accommodates fifty students in single rooms. The living room has a beautiful fireplace. It also has French doors and a very appropriate lighting system. Down stairs we have class rooms and a recreation room. We also have what Miss Hall spoke of, a utility room, planned as nearly as possible like the utility room in the wards. We have sun porches, a tea room, and kitchen. We also plan on teaching chemistry and domestic science in the nurses'

home, so we have a chemical apparatus and facilities for teaching practical cooking. Our aim has been to have certain people give certain rooms as memorials. The home was built by the citizens of Holyoke. Several prominent citizens have been interested in certain rooms, and therefore we have been able to have a little more elaborate equipment than we could have had if the hospital itself had had to provide it. The nurses appear to be delighted with it. Already they have plans to have their friends come and see them. Probably the best thing yet done for the hospital and for the training school has been to open the nurses' home. We invite anybody to inspect the building.

DR. HOWLAND: What are your standard furnishings? or are they uniform?

MISS DOHERTY: They are not uniform. We haven't yet got it completely furnished. We took our furnishings which were in the students' rooms and had that renovated, and added to it when necessary. Each room has a white bed; we have no couches; the general feeling was that the student would prefer a single bed. Each room has a rocking chair and a straight chair. Some of the rooms have been provided with a table and a book rack. Each room has a dresser, and each has also a student's desk lamp. There is also general illumination from the ceiling. We have throughout the nurses' home the vapor system of heating. Our old quarters were very noisy, with the old form of steam radiators. The vapor system is noiseless, and the heat can be turned on from one-fourth to three-fourths.

Q. What is the floor covering?

The floor is reinforced concrete, with linoleum covering. There are bathrooms at each end of the building, with fixtures of the most improved kind. There are groups of three rooms for the staff; they have their own bathrooms. We have no sitting rooms for the staff, which was felt to be a disadvantage; but we are to have a large living room, a small reception room, and down-stairs, a recreation room. They have a reference library.

DR. HERSEY: Mr. Lee has a new addition to his nurses' home—a bowling alley and most artistically fitted-up rooms.

MR. LEE, Waterbury Hospital, Conn. We are one of the few Connecticut hospitals that have had no real difficulty in getting pupil nurses, and I attribute it almost entirely to the fact that we have what we call a good nurses' home. Considerably over 50 per cent. of our applicants are recommended by former graduates. The home has ninety-three rooms in all; contains class rooms, demonstration rooms, a utility room, a reference room. We have two bowling alleys, which are used very freely, and

are growing constantly in popularity. We have a laundry for the use of the nurses; two reception rooms, one large and one small, where they may entertain their friends. We have a small infirmary and two bedrooms with connected bathrooms, and sitting room adjoining where a girl who is sick, but not sick enough to go into the hospital, may spend a few days. We have found that very advantageous. Every room is fitted with hot and cold water; a mahogany, four-post bed, a dresser, a small writing-table, with a table lamp, as well as other illumination. We have a pretty good tennis court, and we expect to have more than one. We also have an assembly hall on the top floor, used for social gatherings, dancing and otherwise. The floors are covered with linoleum, with rugs on the bedroom floors. There are ample bath facilities on every floor. At the time we put in the bowling alleys, we first planned on swimming pools, but when we looked into it we found the cost of upkeep was rather prohibitive. We were also influenced a little by the fact that the public schools have a swimming school, which is open to the public, and we have one night a week when the nurses attend the swimming school. They take advantage of that; there were twenty-two in the last class.

MISS RIDDLE: There is much to be said in the way of appreciation of Miss Haskell's paper. I want to emphasize the point she made regarding the person in charge of the home. The person in charge of the home should be a refined woman, and I believe she should also be someone who is not a nurse, in order that the students may come in contact with someone from the outside world. If she is a refined woman, with a good personality, their happiness will be by so much increased. It is good policy to have a woman of the right kind, for it certainly does have an influence on the character and the number of applicants to the training school. It is very common in these days for the parents to come with the girls when they come to the hospital to make application, and when they find that the girls are under the care of a competent and desirable woman, they encourage them to come.

MR. STEVENS: I am very glad all these points were brought out in regard to the nurses' home becoming a real school for nurses and that in many of the newer homes school facilities are being accentuated. It seems to me that we should provide the nurses' home with every facility, so that the initial teaching of the pupil nurses may be done in the home itself. It seems to me that we should have a real ward, with real beds, with enclavators, with sick-rooms, with the equipment found in the hospital, so that the pupil nurse would find there every bit of equipment that she would find in the hospital, and begin the experiment on the Chase doll, and not on the patient later. I think labora-

tories should be provided, and other class rooms as well, so as to make it a real school for the pupil nurse.

Another point, which has not been brought out, is the matter of providing for night nurses—whether they should be in a separate part of the home; whether nurses while on night duty should move from their own rooms to a section devoted to the night nurses, or whether their rooms should simply be placarded, "Night nurse sleeping," or something of that sort. Another question, Is it desirable to have in every nurse's room running water, instead of having wash-bowls in the general toilet? That seems to me to be rather an important thing. Just how far should we carry the infirmary in the nurses' residence? Should we make it a real section of the hospital where the nurse could be carried through a slight illness, with an attending nurse? Also whether we should provide them with facilities for doing a little cooking, or preparing poultices, or anything of that sort; whether we should make a separate little infirmary? These are the reactions which occurred to me.

DR. HOWLAND: Mr. Stevens asks: Shall night nurses going on night duty give up their rooms, and move to rooms set apart? or shall their own rooms be placarded? Is it desirable to have running water in each nurse's room? How far should we go in having an infirmary in the nurses' home?

MISS HALL: There should be separate rooms for night nurses. I think it is most desirable to have separate rooms for night nurses, where they shall go to sleep, but most undesirable to make her move her belongings to those rooms. Nurses are constantly moving, as it is. She lives in one part of the hospital as a probationer; then later she moves to another room, then she goes on affiliation and moves to another hospital; then she goes back to her own hospital. The result is she is moving all the time she is in the hospital; and to be required to move when she goes on night duty and again when she comes off, is too much. The day of moving is a hard and interrupted day. I know, because I have been through it myself. A day of moving means that the nurse doesn't get much time for sleep when she is going on duty at night. For nurses doing night duty, quiet rooms should be set aside, shut off by fire doors or silence rooms; then the nurse should be allowed to retain her own room during that period of night duty.

Q. How much is the additional cost of putting running water in the rooms?

MR. LEE: I can't tell; but I think it is well worth every dollar put into it.

DR. SEXTON: For the night nurses, we have provided a building away from the nurses' resi-

dence and away from the hospital, where all night nurses sleep. There is no activity in or near this building. They retain their rooms during the period of night nursing.

DR. HOWLAND: Miss Haskell spoke about a dining room in the nurses' home. We have somewhere to think about economy, and I should think there was some question about that. It may be very desirable, but it is a distinct additional cost, if you must have a separate kitchen and a separate dining room in the nurses' home. That is duplication. We try to get away from that, and to centralize things as far as possible. Though it might be pleasant, it doesn't seem to me as if it were necessary to have the nurses' dining room in the nurses' home. I think the results, in the long run, might be that they would get fully as good cooking if the meals were all prepared and served from a central kitchen and serving room. There is a very distinct tendency to have the nurses' rooms apart from the hospital, and I am not sure that I am right about this; but it would seem to be an additional expense and perhaps not as essential as other features we might think of.

MISS HASKELL: Ours is a small hospital, and we have planned for the transportation of food from the general kitchen by means of a Drink-water carriage. The distance the food has to go to the nurses' dining room is perhaps not greater than that which the food has to go in a large hospital from the kitchen to the nurses' dining room. How practical a dining room in the nurses' home might be in a large hospital, I am not competent to judge, because my experience has been entirely in small hospitals. The Drink-water food car is an experiment. At first we planned to have steam tables electrically connected; but after investigation, we decided that we could afford the experiment, because the cost was not very great. We have about eight containers. They advertise that hot things will keep hot, and cold things cold. If they don't stay hot, our nurses will still have hot food, because we have facilities, in a large serving pantry which is connected with the dining room, for keeping things hot.

(To be continued.)

SMALLPOX IN THE PHILIPPINES.

The Monthly Bulletin of the Philippine Health Service reports that for the month of May, 1922, no deaths from smallpox in the Provinces were reported and no cases were reported. Since January there have been 183,254 vaccinations. When smallpox in the Philippines takes its place among the vanishing diseases some of the ammunition of our anti-vaccinationists will be denied them.

THE RIGHTS OF TENANTS CONCERNING THE FURNISHING OF HEAT.

Some annoyance has been expressed from time to time by some tenants because of alleged indifference of landlords to the discomfort of inadequately heated apartments. Under some circumstances the lack of heat may be a health problem.

The Commissioner of Health of the City of Boston has furnished a reprint of the law relating to this matter as follows:

[CHAP. 357.]

AN ACT EXTENDING THE PROVISIONS OF LAW AFFORDING TEMPORARY RELIEF TO TENANTS.

Be it enacted, etc., as follows:

Section 1. Section two of chapter two hundred and fifty-seven of the General Acts of nineteen hundred and nineteen, as amended by chapter five hundred and thirty-eight of the acts of nineteen hundred and twenty and by chapter four hundred and eighty-nine of the acts of nineteen hundred and twenty-one, is hereby further amended by striking out, in the third line, the word "February" and inserting in place thereof the word:—July,—so as to read as follows:—Section 2. This act shall take effect upon its passage, but shall become null and void on the first day of July in the year nineteen hundred and twenty-three.

Section 2. Section two of chapter five hundred and fifty-five of the acts of nineteen hundred and twenty, as amended by chapter four hundred and ninety-one of the acts of nineteen hundred and twenty-one, is hereby further amended by striking out, in the second line, the word "February" and inserting in place thereof the word:—July,—so as to read as follows:—Section 2. This act shall become null and void on the first day of July in the year nineteen hundred and twenty-three.

Section 3. Section six of chapter five hundred and seventy-seven of the acts of nineteen hundred and twenty, as amended by chapter four hundred and ninety of the acts of nineteen hundred and twenty-one, is hereby further amended by striking out, in the second line, the word "February" and inserting in place thereof the word:—July,—so as to read as follows:—Section 6. This act shall become null and void on the first day of July in the year nineteen hundred and twenty-three.

Section 4. Section three of chapter five hundred and seventy-eight of the acts of nineteen hundred and twenty, as amended by chapter four hundred and eighty-eight of the acts of nineteen hundred and twenty-one, is hereby further amended by striking out, in the second line, the word "February" and inserting in place thereof the word:—July,—so as to read as follows:—Section 3. The act shall become null and void on the first day of July in the year nineteen hundred and twenty-three. (Approved May 2, 1922.)

In addition the Commissioner has forwarded the subjoined circular which gives an interpretation of the law and advice to tenants, which may be of value to physicians who find patients suffering discomfort from lack of heat in apartments.

BOSTON HEALTH DEPARTMENT.

ADJUSTMENT OF DISPUTES BETWEEN LANDLORDS AND TENANTS CONCERNING THE HEATING OF RENTED PROPERTY.

In view of the very considerable number of com-

plaints received by the Boston Health Department, alleging failure of landlords to supply sufficient heat for premises and parts of premises rented by them, the attention of such complainants is called to the following statement, showing just what the Health Department can and cannot do with respect to the matter and advising complainants as to the course to be followed in order to adjust such grievances as they may have.

1. There is no law nor ordinance which empowers the Health Department to compel landlords to furnish heat to tenants. Whether a landlord is or is not obligated to furnish heat for his tenants depends entirely upon the expressed or implied agreement between the landlord and the tenant. The Health Department is willing enough to investigate complaints relative to the inadequacy of heat in rented premises or parts of premises—and in some cases may even be of assistance in remedying conditions complained of, especially when cases of sickness on the premises make the relation of such conditions to health clearly apparent—but the limited number of the Health Department's inspectors available to attend to such investigations makes it advisable that tenants adjust their grievances by negotiations with their landlords, conducted in a friendly spirit, and, if such negotiations fail, then institute legal actions themselves in the matter in court, without the intervention of the Health Department.

2. The law recently enacted to provide means of procuring prompt action with respect to the matter of heating rented premises or parts of premises reads as follows:

Any lessor of any building, or part thereof, who is required by the terms, expressed or implied, of any contract or lease to furnish water, heat, light, power, elevator service or telephone service to any occupant of the building, who wilfully or intentionally fails to furnish such water, heat, light, power, elevator service or telephone service at any time when the same is necessary to the proper or customary use of the building, or part thereof, or any lessor who wilfully and intentionally interferes with the quiet enjoyment of the leased premises by such occupant, shall be punished by a fine of not more than one hundred dollars, or by imprisonment for not more than six months. (Acts of 1920, chapter 555.)

3. In order that the law set forth above may serve its intended purpose, in those cases in which tenants have been unable to come to any agreement by direct negotiations to procure adequate heat under the terms of their respective leases or agreements, the following condition should be complied with by the complaining tenant or tenants:

A. The complaining tenant or tenants must be prepared to show that there has been a violation on the part of the landlord of the terms of some lease or agreement under which the tenant is entitled to occupy the premises or a part thereof, with respect to the furnishing of heat. When the obligation to furnish heat is not expressly agreed to in a written contract or lease, the tenant must be prepared to show that there has been a violation of some oral or implied agreement in regard to this matter. The tenant will, of course, strengthen his case if he be able to produce witnesses to corroborate any oral agreement in regard to heat, and it would seem that the fact that the landlord has retained control of the heating apparatus, if he has done so, and that it is impracticable for the individual tenant or tenants who are complaining to control and operate it, might be regarded as presumptive evidence of an implied contract on the part of the landlord to furnish such heat as is necessary for the health and the comfort of the tenants.

B. The complaining tenant or tenants must be prepared to show that there has been a wilful or intentional failure on the part of the landlord to furnish the heat required by the lease or agreement. To this end a written record should be made of actual thermometer readings of temperature, and of the location of the thermometer in the apartment and of the time when such readings were made. If possible, the correctness of this record as to thermometer readings, location of the thermometer and time of the readings should be verified by two or more persons. If more than one tenant joins in the complaint, each should keep his own independent thermometer readings. Thermometers should be provided for this purpose if not already available.

C. If with such a temperature record as is described in the preceding paragraph the complaining tenant has been unable to adjust his differences with his landlord, and if he still feels that the matter must be carried into court, then the complaining tenant should be prepared to show by written evidence or by indisputable oral testimony that the attention of the landlord has been called to the inadequacy of the heat furnished by him and that he has "wilfully or intentionally" failed to furnish sufficient heat.

D. The complaining tenant must then present himself to the clerk of the municipal court in the district in which the property with respect to which the complaint to be made is located and make to said clerk a complaint against the landlord for violation of the law quoted above. In making such a complaint it is not necessary that the tenant should produce all of the evidence he has tending to establish a violation of law on the part of the landlord, although there is no reason why he should not do so; but the tenant must present enough evidence of a lease, contract or agreement to furnish heat and of a failure to do so to make out a probable case of a violation of law. When the case comes before the court, however, the complaining tenant must be in readiness to present all of his witnesses and such other admissible evidence as he may have on which he relies to show a violation of the law.

4. It is urged by the Health Department, not only in the interest of the maintenance of harmonious relations between landlords and tenants, but also with a view to the saving of the time and patience of tenants and landlords and the saving of the time of the court, that no case be presented to the court that can by any possibility be adjusted by negotiations directly between the parties interested.

EXCERPTS FROM THE NEWS LETTER.

ISSUED BY THE NATIONAL COMMITTEE FOR THE
PREVENTION OF BLINDNESS, INC.

If any state legislation is needed which provides either directly or indirectly for the prevention of blindness and the conservation of vision, steps should be taken at the earliest moment to formulate bills and to arouse public opinion in their favor.

The National Committee for the Prevention of Blindness will be glad to be of service to any state or local organization considering state legislation. It will send the Field Secretary, in so far as his time will permit, to any state seriously contemplating such legislation, either before the meeting of the legislature or during its session.

The courses on the education of the blind given during the past two years in the Graduate School of Education of Harvard University have proved so successful that they have become a recognized part of the curriculum. This year's course opened Friday, October 6th. It is being conducted by the Graduate School of Education with the co-operation of the Massachusetts Department of Education, Division of the Blind, and the Perkins Institution for the Blind. Mr. Edward E. Allen, Director of Perkins Institution, will have charge of the course and give a majority of the lectures. With Mr. Allen will be associated Mr. Charles B. Hayes, Director of the Division of the Blind, Massachusetts Department of Education.

The course will, as heretofore, include a survey of the movement for special education for those suffering from seriously defective vision.

Dr. W. H. Hamer, Medical School Inspector of London, England, has come to the conclusion that school girls have too much work to do and that in consequence they suffer more than boys from defective vision, heart disease, anemia and spinal curvature. These can all be traced, he claims, to the same set of causes,—less opportunity for play than boys, less time spent in the defective vision, heart disease, anemia and spinal curvature. These can all be traced, he claims, to the same set of causes, less opportunity for play than boys, less time spent in the open, the performance of household duties, and a difference in school curriculum. He suggests that at least a part of the difficulty might be solved by having the boys share domestic tasks.

The latest figures of the war blind entitled to government compensation are 636. Of these, 311 are totally sightless and 325 partially blind. Training had been given to 242 of the war blind at Evergreen prior to December 31, 1921, when the Institute was turned over to the Veterans' Bureau.

The Massachusetts Medical Society.

MEMBERSHIP CHANGES FOR THE MONTH OF OCTOBER, 1922.

OFFICIAL LIST (9TH).

Compiled by the Secretary.

Fellows should consult the lists of those allowed to resign, to change their district membership and those deprived for non-payment of dues by the Council, Oct. 4, as published in the *Boston Medical and Surgical Journal* of Oct. 19, 1922.

ALPHABETICAL LIST.

Adler, Herman M., Chicago, now 119 East Huron Street.

- Adriance, Vanderpool, Williamstown, now Spring Street.
- Anderson, Frank William, died at Roslindale, Sept. 29, 1922, aged 37.
- Benoit, Samuel J., Gardner, office now 18 Parker Street.
- Berry, Walter D., from Battle Lake, Minn., to East Longmeadow.
- Bone, Herman D., Gardner, office now 19 Pleasant Street.
- Brennan, John P., North Adams, now 112 Main Street.
- Bruce, James W., North Adams, now 85 Main Street.
- †Bush, John Standish Foster, died at Hartford, Conn., October 20, 1922, aged 73.
- Caines, Richard J. R., Boston, now 47 Massachusetts Avenue.
- Carpenter, Robert J., North Adams, now 85 Main Street.
- Clare, Wendell P., from Chelsea to Portsmouth, N. H., 426 State Street.
- Clark, John Donovan, now Abington, Connecticut.
- Cline, Samuel, from Boston (Suffolk) to Dorchester (Norfolk), office Boston, 353 Commonwealth Ave.
- Cullen, Charles A., Springfield, from 400 North Main Street to 51 Harrison Avenue.
- Cunningham, Allan R., from Boston (Suffolk) to Winchester (Middlesex East), 45 Church Street.
- Curran, Arthur M., North Adams, now 63 Eagle Street.
- Curran, William L., North Adams, now 63 Eagle Street.
- Cutler, Elliott C., Brookline, from 61 Heath Street to 84 Reservoir Road (Chestnut Hill).
- Dennen, Ralph W., Waltham, now 301 Moody Street.
- Dolan, William Andreu, died at Fall River, October 1, 1922, aged 64.
- Donovan, Thomas R., Fitchburg, now 40 Prichard Street.
- Du Vally, Alice Butler, Boston, 201 Clarendon Street.
- Eliot, Martha May, Boston, office New Haven, Conn., 330 Cedar Street.
- Enchusky, Claes J., Boston, now care of Boston Dispensary.
- Galleani, Ilia, from Boston to San Francisco, Calif., 655 Stockton Street.
- Gangemi, Michael A., North Adams, 34 Ashland Street.
- Garbelnick, David A., Haverhill, now 96 Columbia Park.
- Gleason, Benjamin W., from Arhol (Worcester North) to Boston (Suffolk), 86 Charles Street.
- Goss, Arthur V., from Taunton (Bristol North) to Williamstown (Werkshire), 17 Bulky Street.
- Granger, Frank B., office Boston, 520 Commonwealth Avenue, now 520 Beacon Street.
- Greene, Thomas Francis, died at Roxbury, October 24, 1922, aged 60.
- Gurjian, Leon K., from Worcester to Lynn, 631 Western Avenue.
- Hartwell, John B., Colorado Springs, Colo., 1121 North Tejon Street.
- Hastings, Robert Worthington, died at Brookline, October 13, 1922, aged 56.
- Hopkinson, George, from Akron, Ohio, to Boston, 314 Marlborough Street.
- Harley, Daniel B., East Boston, from 42 Chelsea Street to 158 Princeton Street.
- Hutchinson, Charles W., Concord, now 69 Main Street.
- Jackson, Roy C., from Middletown, Conn., to Brattleboro, Vermont, 75 Linden Street.
- Kelley, Clarence M., Concord, N. H., now The Parker School.
- Lavelle, Gertrude H., Natick, now 19 East Central Street.
- Luce, LeRoy A., Boston, now 416 Marlborough Street.
- McCormick, John Joseph, from San Antonio, Texas, to Honolulu, H. I., Major Medical Corps, U. S. A.
- Mella, Hugo, from Cambridge (Middlesex South) to East Milton (Norfolk), office Boston, 106 Marlborough Street.
- Merrill, Albert S., from Hudson to Brighton (Middlesex South), office Boston, Massachusetts General Hospital.
- Merrill, Ralph E., Kutien via Foochow, Fuhkien, China.
- Metzalf, Ben H., from Winthrop to Denver, Colo., 2056 Forest Street.
- 1901-1922—Millet, Wilfrid Antoine, Pittsfield, 255 North Street. Restored by Council, Oct. 4, 1922.
- Myrick, Hannah G., from Roxbury to Dorchester, 58 Sumner Street.
- 1910-1922—Naurison, James Zuslofsky, Springfield, 172 Main Street. Restored by Council, Oct. 4, 1922.
- Owen, Albert S., Framingham, now 18 Union Avenue.
- Osgood, George E., from Wells, Me., to St. Petersburg, Fla., R. F. D. 80.
- 1911-1922—Paclarian, Sumpat Kovork, Lowell, 224 Fairburn Bldg. Restored by Council, Oct. 4, 1922.
- Paine, Mortimer H., Maynard, now 31 Main Street.
- 1904-1922—Pastene, Albert Angelo, Brookline, office Boston, 11 Charlesgate West. Restored by Council, Oct. 4, 1922.
- Parker, Willard S., Boston, now 270 Commonwealth Avenue.
- Parmenter, Derric C., from East Gloucester (Essex South) to Boston (Suffolk), 68 Pinckney Street.
- Perry, Henry Joseph, from Boston (Suffolk) to Brookline (Norfolk), office Boston, 45 Bay State Road.
- Pratt, Emily A., from Staten Island to Long Island, N. Y., 4943 97th Street, Woodhaven.
- Rochette, Edward C., Worcester, from 20 Portland Street to 14 Channing Street.
- Segal, Joseph N., Boston, from 47 Chambers Street to 536 Commonwealth Avenue.
- Simpson, Charles M., from Boston to Dallas, Texas, c/o United Fidelity Life Ins. Co.
- Smith-Petersen, Marius N., Newton Centre, office Boston, now 31 Bay State Road.
- Stowell, Frank E., Worcester, from 37 Pearl Street to 44 Pearl Street.
- Tedford, Ada H., from Woburn to Fort Sanders Hospital, Knoxville, Tennessee.
- Tohey, George L., Jr., from Boston (Suffolk) to Brookline (Norfolk), office Boston, 270 Commonwealth Avenue.
- Tohey, Harold G., from Boston (Suffolk) to Jamaica Plain (Norfolk), office Boston, 270 Commonwealth Avenue.
- Tucker, George E., Salem, from 86 Federal Street to 389 Essex Street.
- Turner, William K., Capt. Medical Corps, U. S. A., Portland, Me., Fort McKinley.
- Watkins, Harvey M., from Hathorne (Essex South) to Belchertown (Hampshire), Belchertown State School.
- Watts, Harry A., from Malden (Middlesex South) to Braintree (Norfolk South), office Boston, 100 Boylston Street.
- Wesselhoeft, Conrad, Boston, from 535 Beacon Street to 366 Commonwealth Avenue.
- Wood, Russell, from Roxbury (Norfolk) to Boston (Suffolk), Boston City Hospital, South Department.
- Wood, W. Franklin, from Palmer (Hampden) to Roxbury (Norfolk), 74 Fenwood Road.

Copy for the Directory of January 1, 1923, will go to the printer soon. If you want your address in that to be correct notify the Secretary of any error at once. Changes of address should be sent to the Secretary, Dr. Walter L. Burrage, 42 Eliot Street, Jamaica Plain, 30.

THE BOSTON Medical and Surgical Journal

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THE CAMPAIGN AGAINST HEART DISEASE.

Recent publication of discussions concerning the field of preventive medicine in heart disease by Dr. Robert H. Halsey, Vice President of the New York Association for the Prevention and Relief of Heart Disease, and by other interested physicians, makes it worth while to summarize the present status of this very important subject.

Some years ago, just prior to the war, the New York Cardiac Clinics became affiliated and formed the New York Association for Cardiac Clinics. Also there was established in New York City the Association for the Prevention and Relief of Heart Disease, which had a wider outlook and membership and which included on its rolls the members of the New York Association of Cardiac Clinics. There was an interruption of the work of both Associations during the war but in the last three years both organizations have resumed considerable activity and now present to the public, medical and lay, a considerable program of endeavor.

Following the example of New York, other cities—Boston, Philadelphia and Chicago in particular—have organized in varying degrees a campaign against heart disease. The Boston Association of Cardiac Clinics was informally organized in the winter and spring of 1921. On February 23 of that year the chiefs of the Cardi-

ac Clinics in the various hospitals in the city—the Children's Hospital, Boston City Hospital, Peter Bent Brigham Hospital, Boston Dispensary, and the Massachusetts General Hospital—were called together with a few others interested in the work to discuss the organization of an association. The first public meeting was held at the Boston City Hospital on May 20, 1921. At this meeting Dr. Robert H. Halsey, at that time the Chairman of the New York Association of Cardiac Clinics, gave an account of the experiences and work and plans of the New York Association.

During the past winter and spring, 1921-1922, four public meetings were held by the Boston Association of Cardiac Clinics at different hospitals. In November at the Massachusetts General Hospital papers were read on "The Diagnosis of Heart Disease, with Especial Reference to its Importance in Preventive Medicine" and on "Problems for Cardiovascular Research." In January at the Peter Bent Brigham Hospital Dr. William P. St. Lawrence of St. Luke's Hospital, New York City, spoke on "Potential Heart Disease and The Development of Organic Heart Disease in Children." On March 16, at the Boston City Hospital, papers were presented on "The Heart in Industry" and "Exercise Tests and the Vital Capacity." At the Children's Hospital on May 18 of this year there were two papers, one on "Heart Disease in the Community" and the other on "Heart Disease in the Schools."

It is planned to hold four more meetings during the coming season, the first one in November (the 16th) on the subject of "Syphilitic Heart Disease;" one in January (the 18th) on the subject of "Heart Disease in Pregnancy;" and the last two meetings in March (the 15th) and May (the 17th), at which two or three of the following subjects will be taken up: Arteriosclerosis and Heart Disease, Hypertension and Heart Disease, The Prevention and Treatment of Heart Failure, Thyroid Heart Disease, Congenital Heart Disease. There will be again a rotation of meetings in the various hospitals in the city. It is urged that all doctors and medical students, nurses and social workers, and lay people who are interested should attend these meetings.

The Boston Association of Cardiac Clinics is now planning to expand widely into an organization to be called The Boston Association for the Prevention and Relief of Heart Disease. This will be incorporated with a Board of Governors within a few months and there will then be a wide invitation extended for membership of all kinds, in order to obtain further workers in the field and in order to obtain financial support for much-needed progress. Again the support of the medical profession and of the public at large is requested for the very vital work of the study of heart disease.

It was not many years ago that many diseases

were considered, as part and parcel of human life, acts of God. Gradually various infections and other pathological conditions have been combated. Tuberculosis, typhoid fever, diphtheria and malignant diseases have all been attacked. Extensive organizations, particularly in the study and control of tuberculosis and cancer, have existed for years. Steady progress has been made in the control of these conditions, but there is still much to be done. One of the very last diseases to be attacked is that of the heart; now interest has grown up by leaps and bounds throughout the country and throughout the world in the possibility and probability of the prevention of a considerable amount of heart disease. Rheumatic fever, syphilis, hyperthyroidism and the factors leading to hypertension and early arteriosclerosis are the points of attack. Much research is necessary and much education of the public. A national committee has been appointed for the affiliation of the work on the prevention and relief of heart disease in the various cities of this country. We must see that Boston and New England hold up their end of the responsibility in this field of medicine.

SENSATIONAL STATEMENTS IN THE PUBLIC PRESS RELATING TO MEDICAL TREATMENT.

Many newspapers frequently carry references to practitioners of medicine and methods of treatment. These are matters of interest, for disease is omnipresent and people are hoping for cures for all human ills. Some papers seem to be regardless of truth and present unreasonable statements about medicines, surgical operations and work done by members of the medical profession.

At the present time great interest is being taken in the treatment of diabetes by the use of pancreatic extract. Unconfirmed assertions have been made setting forth the revolutionary effects following the use of this agent, and newspapers have published accounts of alleged interviews with physicians. In one instance a prominent physician was reported to have endorsed the "cure." The standing of two large daily papers led the *Boston Herald* to repeat the alleged assertions of this doctor, but upon learning of the categorical denial of the published statements, the *Herald* expressed regret for the error committed in an honorable and manly fashion. We congratulate the Editor for the stand taken.

This JOURNAL finds through a reliable source that the time has not arrived for the publication of definite statements relating to the use of the pancreatic extract in cases of diabetes, because the whole subject is still in the experimental stage. Competent investigators have agreed that nothing further should be published

until Dr. Banting has brought forward additional information in his possession and competent investigators have conferred together. It is proposed that when the time for publicity shall have arrived the results of the work done in many laboratories will be published simultaneously in one journal.

The profession should endorse the attitude taken by the scientific workers in this field because the premature announcement of an important therapeutic agent might bring discredit to medicine and work harm to patients. If the pancreatic extract has value, its application will probably have to be subject to carefully regulated dosage and the coincident behavior of the disease will also probably have to be under expert observation. The history of specific medicines demonstrates that even with these drugs, intelligent adaptation to the disease is necessary to get results and protect the patient.

With all gratitude to the men who are concentrating on this problem let us wait patiently for their verdict.

THE SAMUEL FULLER MEMORIAL.

The attention of physicians, and of others interested in the history of medicine and of this Commonwealth, is again directed to the Memorial Fund which a committee of the Massachusetts Medical Society is endeavoring to raise to the honor of Doctor Samuel Fuller, physician of the *Mayflower* and of the Pilgrim settlement at Plymouth.

As long ago as February 10, 1916, the late Dr. Thomas F. Harrington of Boston published a piece of correspondence in the JOURNAL, on "The Surgeon of the *Mayflower*," sketching the life and services of Dr. Samuel Fuller, and suggesting that recognition should be given to him by the medical profession at the celebration of the Pilgrim Tercentenary.

On December 16, 1920, Dr. Charles H. Bangs, of Swampscott, Massachusetts, published in the JOURNAL a more extended article on "The Pilgrim Physician." At the meeting of the Council of the Massachusetts Medical Society in June, 1921, Dr. Bangs urged that "the Massachusetts Medical Society take steps in this tercentenary year to make a suitable memorial to that eminent pioneer physician." Accordingly Dr. Bangs, and Dr. George O. Ward of Worcester, Dr. Myles Standish of Boston, and Dr. Edgar D. Hill of Plymouth, were appointed a committee, under the chairmanship of Dr. Robert M. Green of Boston, to consider some suitable memorial to Dr. Fuller.

After several meetings during the tercentenary season, this committee reported to the Council on October 5, 1921, that it had considered several propositions, but was unanimous in recommending that the memorial should take the form of a fund, to be known as the Samuel

Fuller Memorial Fund, to be applied to the establishment of a bed or ward at the Plymouth Hospital. This report was referred to the Committee on Membership and Finance, which, on February 1, 1922, again reported to the Council, approving the project but not recommending an appropriation of money from the treasury of the Society. The Council, therefore, voted to accept the recommendations of both committees and delegated further action on the Samuel Fuller Memorial to the original committee in conference with the President of the Society.

In accordance with this action the Samuel Fuller Memorial Committee appealed last spring through the JOURNAL to the medical profession for subscriptions of not more than five dollars to the Samuel Fuller Memorial Fund. A few physicians responded promptly and generously. Their contributions were acknowledged in the JOURNAL, and a suitable certificate was sent to each subscriber. Since this time, however, interest in the Samuel Fuller Memorial Fund seems to have waned; and the committee is now moved to call attention to it again, in confident expectation of a more extensive response.

The services of Dr. Fuller as the pioneer physician of New England are unique. Not only was he the sole practitioner of medicine aboard the *Mayflower*, and in the Pilgrim community during the bitter hardship and distress of its first year at Plymouth; but later, as that community was extended by other settlements along the Massachusetts shore, he extended his ministrations as practitioner and consultant, so that his name and personality were known throughout the New England colonies of the seventeenth century. These services should not now be suffered to lapse into oblivion. And it has seemed that the best memorial perpetuation of them will be in the form of such a fund as the Massachusetts Medical Society is now endeavoring to raise, to continue in the Plymouth community the service to humanity which Dr. Fuller so freely rendered during his own life.

This fund, which is peculiarly a memorial by physicians to a physician, will be held in trust by the committee and its progress regularly reported to the Council and the Society. Its nucleus is already securely invested in a savings bank; and when it has reached sufficient size, it will be presented by the Society to the Plymouth Hospital, for the endowment of a free bed or ward in memory of Doctor Samuel Fuller, the Pilgrim Physician, the income only to be used for its maintenance. The memorial will therefore be permanent, a perpetual potentiality for good, for the relief of the same human suffering and misfortune as those which Dr. Fuller gave the labor of his life to alleviate.

In another column of this issue of the JOURNAL is published a complete list of those who have already subscribed. Further contributions will be duly acknowledged in the JOURNAL,

and a suitable certificate will be sent to each subscriber.

Subscriptions should be mailed to the chairman of the committee, Dr. Robert M. Green, 496 Commonwealth Avenue, Boston.

STANDARDS OF MOTHERS' MILK IN AUSTRALIA.

The Medical Journal of Australia reports that the Commonwealth, New South Wales, Queensland and Western Australian health authorities have adopted an arbitrary standard composition of human milk at 1.5% protein, 3.5% fats and 6.5% sugar but permit a 20% variation of each constituent. The Victorian authority also accepts this arbitrary standard of composition but is not prepared to recognize any fixed variations in the percentage of sugars.

A study in 1915 of the composition of mothers' milk in Australian women showed that the fat content varied between 0.56% and 7.6%, the average being 3.14%, which is lower than the figure on which the legal standards are based. The women from whom the milk was obtained were all apparently normal and the babies were well nourished. During the first eleven days the fat content of the milk of these women rose from 2.8% to 4.1%. It was contended that nature provides a variation of 80% below the mean and 15% above.

The comment on the situation by physicians is severe for it is felt that the standards adopted are too arbitrary and not in accordance with physiological facts.

THE SPAHLINGER TREATMENT OF TUBERCULOSIS.

REPORTS from England set forth that the Red Cross Society has not advanced thirty thousand pounds as the purchase price of the Spahlinger Serum, but has appropriated funds for an investigation of the treatment under scientific observation.

Spahlinger has insufficient resources to carry on production of the Serum in suitable quantities for use in many institutions. It will be a considerable length of time before the selected institutions will be supplied with material for study.

The question has been raised as to the propriety of the action of the Red Cross in taking over the function of endowing scientific investigations. The original purpose in the organization of the Red Cross did not cover such functions, and it is quite reasonable to assume that scientific investigations could be left to other organizations with advantage to all concerned.

The obligations of the Red Cross are large enough to call for the employment of all its resources.

AUTOMOBILE FATALITIES.

THE Department of Commerce announces that 10,168 deaths resulted from automobile accidents in 1921 in the death registration area. This covers 82 per cent. of the total population. The deaths due to motorcycle accidents are not included. The figures represent a death rate from automobile accidents of 11.5 per 100,000 population. This is an increase of 1.1 over the preceding year and in comparison with former years shows a steadily increasing rate. California, with a record of 24.4 heads the list. Connecticut comes next with 15.5, then New York with 15.4 and North Carolina with 15.3 next in order. Massachusetts, Rhode Island and Illinois have about the same proportion, a little over 13 per 100,000. Mississippi is the safest state in this country to live in from the standpoint of automobile hazard to life, with the proportion of 2.6 per 100,000.

There can be no doubt of the value of the proper use of the automobile, but there is reasonable doubt of the necessity of the greater proportion of fatalities. The automobile may be a valuable addition to health in its power to provide recreation. It may be that the entertainment and open air life incident to its use actually adds to life and efficiency and offsets its bad features, but nobody knows the exact relative values at present. It is often contended that its use by physicians adds to the efficiency of medical practice and is a means of saving life. Some patient and painstaking student may be able to console us in the future. On the other hand, the increase in the great number now in use may lead to lessened employment for purposes of recreation, for we are confronted with a congestion on our roads at times that detracts from the pleasure of automobile travel.

The larger Massachusetts cities show the following figures for 1921:

Worcester, 37 deaths; 20.0 per 100,000.
Lowell, 21 deaths; 18.5 per 100,000.
Cambridge, 19 deaths; 17.2 per 100,000.
Springfield, 23 deaths; 16.9 per 100,000.
Boston, 103 deaths; 13.6 per 100,000.
Fall River, 13 deaths; 10.8 per 100,000.
New Bedford, 9 deaths; 7.2 per 100,000.

In all of these cities except New Bedford the ratio is larger than it was in 1920.

These figures present opportunity for analyses, for such questions as the proportion of high-powered cars, the physical fitness of drivers, the relation of through travel to the number of deaths and many other questions might be studied to advantage. Worcester, Lowell, Cambridge and Springfield are cities in which there is much through travel. Boston, Fall River and New Bedford could be spoken of as more largely terminal, although Boston has

a very large number of visiting automobilists. Cities through which large high-powered cars pass in greater numbers may have more elements of danger. No analysis has, however, been made and we are left without explanation other than the facts setting forth the number of deaths and the proportion to inhabitants.

One can logically raise a question as to the greater blame of Worcester as compared with New Bedford.

SOME SUGGESTIONS AND CONCLUSIONS IN REVIEW OF THE SESSIONS OF THE SURGICAL CONVENTION.

Now that the shouting and the tumult has ceased, and the Captains and the Kings of Surgery have largely departed, it is permissible to review a little the physical and mental aspects of the 10th Convocation of the American College of Surgeons, and to regard some of the many considerations which it has conveyed and impressed.

First, and perhaps most of all, the meeting itself emphasized and accentuated to a remarkable degree that text which Dr. Harvey Cushing so aptly took for his presidential address—an admirable, important and interesting essay; an essay which should be reread by all who heard it, and studied attentively by those who did not.

"No one can be a good physician who has no idea of surgical operations, and a surgeon is nothing if ignorant of medicine. In a word, one must be familiar with both departments of medicine."

Look again at the very voluminous programme of the Congress and notice the wide catholicity of both topic and teacher in surgical matter during those very busy five days; one-fifth of the entire time was given to the broad subject of hospitals, in all their manifold elements; one evening to the presentation of a signal and well merited honor to "an institution," a Man—a Teacher, an Editor and a Surgeon—and great in all these roles; two dignified and colorful ceremonials marked the opening and ending of the sessions; and throughout the other four days, the Surgeon has been assisted and his work illuminated and clarified by the Anatomist, the Physiologist, the Neurologist, the Roentgenologist, the Syphilographer, the Internist and the leaders of practically every one of the great subdepartments of medicine. This admirable and broad view of what surgery denotes and connotes is both proper and very striking.

A second consideration totally different in character, and one which concerns the practical working aspects of the meeting, is this—that some of the most deserving and most carefully prepared clinics were but sparsely attended;

simply for the purposes of illustration an afternoon session of the Boston Dispensary may be cited. For old associations, as well as for the interest which its programme excited, a Boston doctor went to this clinic and was rewarded by as well arranged, as interesting and instructive an afternoon as can well be imagined; with an exposition of methods and end-results that were quite beyond criticism. Any large hospital in this country might justly be proud of the results of fractures and operations there shown, while the methods in vogue of initial examinations, of the conduct of the sub-departments and of general efficiency and economy of the entire institution, merited the attendance of many times the number of visitors present. This was the more to be emphasized since the work and the problems of the Dispensary, as of more than one other relatively small institution, is closely in line with that of a great number of hospitals throughout the country. Members of those staffs were among our visitors; in fact, it may reasonably be assumed that a majority of the visiting surgeons would have seen at the less well attended clinic in Boston, the attack upon and the solution of problems more nearly their own, than those which they tried to observe in the overcrowded amphitheatres of the largest hospitals. This is a practical question, fully appreciated by those who outline the meetings of the College, but it is a question for which as yet an entirely satisfactory solution has not been discovered.

Finally, was the meeting a success, and did Boston Surgery show itself to be fairly well to the fore as judged by the high standards which the American College of Surgeons proclaims and demands? To this, one can only say that frequent and apparently frank comments seemed to give an affirmative answer. In spite of pessimists and punsters, Boston may consider itself fairly worthy of its medical old masters. Ancestors are both an asset and an inspiration, and also a responsibility and a challenge. It is a fact that the next five years—even the next three—will witness the passing from the active surgical staffs of some of the largest Boston Hospitals, nearly a round dozen who for the past twenty or thirty years have worked in their wards and operating rooms; and for the past decade, at least, have borne the burden of the day and the heat.

Many of these men feel themselves still young in the physical and physiological sense, and they experience, at least in a slight degree, that vague though ancient and very human feeling of wonder as to what the veiled future holds in hidden hands for the institutions which they love so well, and which they have come to look upon, not unnaturally, as their very own. "In changeless change they go, the Singing Days;" and shortly the dozen surgeons who attain to the time-honored age of threescore years, commit the care and the conduct of and the repu-

tation of their workshops and amphitheatres to the hands of the younger men, who have so recently been their pupils, and their students!

Fortunately they may be comforted! There is no need nor excuse for apprehension! All who watched the work of the younger generation of Boston surgeons during the past week—work done under the keen and scrutinizing, though friendly eyes of the visitors, the best surgeons of America—were convinced that the future of Boston's hospitals and of surgery in Boston, is secure; it rests upon young but sturdy shoulders; it will be done by youthful but well-trained hands, directed by healthy and disciplined and able brains, for it is amply evident that, good as our surgical fathers and forefathers were, our sons will be even better!

News Notes.

CHANGE OF OFFICE—Dr. T. Chittenden Hill announces the removal of his offices from 31 Bay State Road to 270 Commonwealth Avenue.

GRADUATION OF THE FIRST-TRAINED NURSE IN AMERICA—On October 23, the New England Hospital celebrated the fiftieth anniversary of the graduation of Miss Linda Richards, the first graduate trained nurse in America. Dr. Alfred Worcester delivered an oration.

AMERICAN COLLEGE OF SURGEONS—Officers of the American College of Surgeons, who were elected at the annual meeting: President, Dr. Albert J. Oelsner, Chicago; First Vice President, Dr. Lincoln Davis, Boston; Second Vice President, Dr. John George McDougall, Halifax.

WORCESTER DISTRICT MEDICAL SOCIETY—An open meeting, to which the public were invited, was held November 8th, at 8 p.m., in Horticultural Hall, 18 Front Street. The subject for discussion was, "The Prevention of Cancer." Program: The Local Cancer Situation, Dr. Ernest L. Hunt, Worcester. Progress and Results in Cancer Control, Frederick T. Hoffman, LL.D., Director American Society for the Control of Cancer—Consulting Statistician for the Prudential Insurance Company of America. The Cancer Society's two-reel film entitled, "The Reward of Courage." Dr. Kendall Emerson, Chairman of the Worcester Committee, presided.

NOTE.—During National Cancer Week, November 11-18, there will be public Clinics, 11-12 a. m., every day, at the Worcester City, St. Vincent, Memorial and Hahnemann Hospitals.

Physicians desiring consultations are invited to bring or send their patients to one of these Clinics at the appointed hour. The results of

the examination will be promptly forwarded to the physician in charge of the case.

LYNN MEDICAL FRATERNITY.—A regular meeting of the Lynn Medical Fraternity was held at Hotel Seymour, Lynn, on October 31, 1922, at which Dr. William E. Preble, of Boston, presented a paper upon "Obesity," with a series of charts based upon an analysis of 1000 cases.

AMONG THE CANDIDATES for Fellowship in the New York Academy of Medicine the name of Thomas Edward Cavanaugh, M.D., of Springfield, Mass., appears.

HAMPSHIRE DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society was held at Boyden's Restaurant, Northampton, Wednesday afternoon, Nov. 1, at 4:30 P.M. Dr. Florence Gilman, College Physician and Director of Hygiene and Physical Education at Smith College, read a paper on "Health Building and Health Training as Part of the College Curriculum." Dr. Gilman is a national authority on the training of the American college girl.

DR. CHESTER T. COBB, Northampton, attended the annual convocation of the American College of Surgeons recently held in Boston.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Nov. 4, 1922, the number of deaths reported was 222, against 176 last year, with a rate of 15.16. There were 30 deaths under one year of age against 20 last year. The number of cases of principal reportable diseases were: Diphtheria, 68; Scarlet Fever, 27; Measles, 71; Whooping Cough, 69; Typhoid Fever, 1; Tuberculosis, 39. Included in the above, were the following cases on non-residents: Diphtheria, 4; Scarlet Fever, 4; Whooping Cough, 1; Tuberculosis, 3. Total deaths from these diseases were: Diphtheria 4; Whooping Cough, 4; Tuberculosis, 14. Included in the above were the following cases of non-residents: Diphtheria, 2; Tuberculosis, 2.

CHANGE OF OFFICE.—Dr. George Gilbert Smith announces the removal of his office to 7 Marlborough Street, Boston, Massachusetts. Telephone Back Bay 10507.

HARVARD MEDICAL SOCIETY.—A meeting of this Society was held in the Peter Bent Brigham Hospital Amphitheatre Tuesday evening November 7th.

PROGRAM.

Demonstration of Cases.

Wirsung to Rioloan on the Pancreatic Duct.
Dr. John Donley, Providence.

The Inadequacy of the Measured Diet as an

Index of the Food Metabolized. Dr. Henry B. Richardson, New York.

THE FIRST CLINICAL MEETING of the General Staff of the Sturdy Memorial Hospital of Attleboro, was held at the hospital on Thursday, November 2nd, at 4 p.m. Program: SURGICAL, Reports of Two Cases of Uterine Fibroids Simulating Pregnancy. Dr. F. J. Carley of North Attleboro. Discussion opened by Drs. John A. Reese and Wm. O. Hewitt. MEDICAL, Report of a Case of Hodgkin's Disease and Report of a Case of Leukemia. Dr. H. L. Rich of Attleboro. Discussion opened by Drs. F. V. Murphy and A. B. Shoemaker. A buffet lunch was served at the close of the meeting.

DR. WM. O. HEWITT,

DR. JOHN A. REESE,

DR. WILFRED E. ROUNSEVILLE.

Committee in Charge.

THE RED CROSS ROLL CALL.

Membership in the Red Cross is both a privilege and a patriotic duty of American citizenship. Congress created it as the national and international agency of the United States to meet all great emergencies. The demands upon it locally, nationally, and internationally are persistent and insistent by suffering peoples at home and abroad.

The Red Cross is an army. Its members constitute this noble army fighting the battle of humanity. It is the army whose badge is service to all mankind; to humanity everywhere of whatever religion, race, color, or creed.

The emergency is here. It is now facing the Red Cross at home and abroad. Our own ex-service men and disasters at home are constantly with us. And now, the American Red Cross has responded to the appeal of the President of the United States and has definitely undertaken the work of saving the Christian and other refugees who have been driven by the Turks from Asia Minor into Greece.

The obligation met by the American Red Cross when in war time it furnished 19,877 nurses for active duty with the Army and Navy, the report just issued shows, is being met also in peace time with a reserve of nurses now aggregating 38,855, an increase of 1,068 since the 1921 report. Of this reserve 102 are serving the Army, 117 the Navy, 162 the U. S. Public Health Service, and 1,035 the U. S. Veterans' Bureau. One hundred and one nurses died during the year, three from disability incurred by service in the World War.

The Red Cross public health nurses are working in 1,145 communities in the United States, Alaska, the Philippines, Porto Rico, Hawaii and the Virgin Islands.

The Roll Call will be conducted from November 11 to November 30.

WINCHESTER'S INFANT MORTALITY.

The distinction of having the lowest infant mortality for 1921 in Massachusetts is enjoyed by Winchester. The rate is 38 per 1000, which is half the average state rate.

Maurice Dinneen, Winchester's Health Officer, has stated that this remarkable showing should be credited to the Board of Health, and is the result of many years' careful oversight of health conditions. This board has maintained a health center with a clinic under the supervision of Dr. Harold F. Simon. Instruction in pre- and post-natal work has been given by a full-time nurse. Under Carl F. Woods, Chairman of the Board of Health, the milk supply of the town has been carefully supervised.

The State Department of Health could properly give a medal to any municipality that could demonstrate such efficiency.

MASSACHUSETTS CENTRAL HEALTH COUNCIL.

A regular meeting of the Massachusetts Central Health Council was held at Hotel Victoria Nov. 1st.

The following organizations were represented:

American Red Cross by Mr. Roach.

American Society for Control of Cancer, Dr. Richardson.

Massachusetts Association Boards of Health, Mr. Kirschbaum.

Massachusetts Association of Directors of Public Health Nursing, Mrs. Stevens.

Massachusetts Department of Public Health, Drs. Kelley and Champion.

Massachusetts Dental Society, Drs. Rice and Lindstrom.

Massachusetts Medical Society, Drs. Safford and Bigelow.

Massachusetts Society for Social Hygiene, Mr. Hess.

Massachusetts Tuberculosis League, Dr. Otis and Mr. Spencer.

Dr. Champion reported progress in the maternity work of the State Department. Three physicians and seven nurses are studying conditions throughout the state. Reliable statistics of maternal mortality in childbirth are sought.

Dr. Richardson outlined the plans for Cancer Week, November 12th to 18th. District and local medical societies and hospitals will co-operate to bring about more effective control of this disease.

Mr. Walter Clark, representing the National Health Council, present by request, described the work of Health Councils in other states and outlined plans for extending the Massachusetts form of council throughout the country.

Emphasis was laid in the discussion that fol-

lowed, regarding the primary function of the Massachusetts Council, which is the meeting of representatives of the ten allied organizations for conference, discussion and reports on the work and plans of each member organization.

Publication of a popular journal through whose pages all health organizations in Massachusetts might reach a large constituency, was discussed.

Gertrude W. Peabody, Sec.,
13 Kirkland St., Cambridge.

GRADUATING EXERCISES OF THE CAMBRIDGE HOSPITAL TRAINING SCHOOL FOR NURSES.

On October 31st fifteen pupils completed the courses in the Cambridge Hospital Training School and were given diplomas.

The meeting was presided over by the President of the Board of Trustees, Dr. William D. Swan. Dr. W. P. Bowers spoke on Some of the Problems Relating to the Education of Nurses.

Miss Josephine Thurlow, superintendent of the hospital, reviewed the history of the school and reported that there are now in training seventy-eight pupils. The curriculum has been extended so as to give courses in some departments of public health nursing and the administration of anaesthetics. A large audience convened to extend congratulations to the graduates.

Obituary.

KARL VON RUCK, M.D.

Dr. Karl von Ruck, internationally known authority and specialist on treatment and prevention of tuberculosis, died in Asheville, N. C., Nov. 5, 1922, after an illness of several weeks, at the age of 73.

Born in Stuttgart, Germany, in 1849, he received his degree of doctor of medicine at the University of Tübingen in 1878. He went to England and later came to America and earned a degree of M.D. at the University of Michigan in 1879. He later studied at the University of Berlin in 1882. After some years of practice in Ohio, he settled in Asheville, where he founded the Winyah Sanatorium in 1888. This was among the first private institutions for tuberculosis treatment. In 1895 he founded the Von Ruck Research Laboratory for Tuberculosis at Asheville. He was a member of the American Medical Association, and numerous medical congresses and societies in America and in Europe, and he contributed articles on tuberculosis to medical journals in this country and in Europe. In 1872 he married Delia Moore of Ottawa, who survives him.

Correspondence.

NEURO-PSYCHIATRY.

November 1, 1922.

Mr. Editor:

This Bureau is charged with the responsibility of furnishing medical care and treatment to veterans of the World War. We find ourselves handicapped by a very serious shortage of physicians and nurses trained in Neuro-Psychiatric work. The need has become so urgent that the Director has decided to make an endeavor to give special instruction to selected doctors and nurses for the purpose of supplying our needs in hospitals and dispensaries.

I am enclosing an announcement on the subject which is self-explanatory.

Dr. Frank F. Hutchins, Professor of Mental and Nervous Diseases, University of Indiana, and the Director of Clinical Neuro-Psychiatry, U. S. Veterans' Bureau, is in direct charge of these courses and any reply that you care to send should be forwarded to this office for his attention.

It has occurred to me that you might assist the Bureau to bring this matter to the notice of your readers, by publishing such extracts or portions of the announcement as you may deem necessary and convenient.

Very sincerely yours,

ROBERT U. PATTERSON, A.J.M.,
Assistant Director.

October 31, 1922.

The United States Veterans' Bureau offers a special course in Neuro-Psychiatry to a certain number of qualified physicians on condition that upon completion of such course they will continue in the service of the Bureau for a period of at least two years thereafter.

The policy of this Bureau is to provide expert medical attention for the disabled veterans so that everything possible may be done to restore them to health and proper status in civilian life. To maintain this policy in the opening up of new hospitals, and being unable to secure the required number of specialists in nervous and mental diseases, it becomes necessary to instruct a staff of our own for this line of work. To this end a systematic and comprehensive course in Neuro-Psychiatry has been carefully outlined consisting of 176 lectures and demonstrations and some 440 hours of clinical and laboratory work. Each course will be for a period of about four months. There will probably not be more than two courses annually. Courses will be offered as long as it appears necessary in order to meet Bureau requirements. Instruction will include the necessary reviews of the fundamentals, followed by clinics and lectures on the various forms of nervous and mental diseases, including endocrinology. Special attention will be devoted to diagnostic methods, the general care of patients, and methods of treatment. Students will have actual experience in practical work. General problems of hospital administration, medico-legal questions, rehabilitation methods, psycho-metric examinations and other related matters will be adequately dealt with.

The main part of this course will be given at St. Elizabeth's Hospital, a government institution for the insane at Washington, D. C., which offers unusual and unexcelled facilities for such work. There are nearly 4,000 patients and case histories of more than 20,000 discharged patients immediately available for study. Here are all classes of nervous and psychotic diseases, while other public hospitals in Washington will provide abundant clinics in so called functional diseases, borderline cases, and the milder types.

The teaching staff that has been selected to give this course in Neuro-Psychiatry is significant. Besides the members of the staff at St. Elizabeth's there

will be lecturers from the Medical Departments of the Army, the Navy, the Public Health Service, the United States Veterans' Bureau and the U. S. Department of Agriculture. A number of America's most eminent neurologists and psychiatrists will come to deliver lectures on special topics.

As the number of students that can be accommodated is limited, early application for each course is desirable.

Further information may be secured by applying to the Bureau.

Other things being equal, members for the course will be selected in the order of their application.

Students who are authorized to take the course who are not already in the employ of the Veterans' Bureau will receive a salary of \$166.00 per month, with no allowances, while taking the course.

On satisfactory completion of the course members will be recommended for the grade of Passed Assistant Surgeon in the Reserve Corps of the U. S. Public Health Service, or they will become eligible for employment as "Class B" physicians under the U. S. Civil Service Commission and assignment to duty with the U. S. Veterans' Bureau. These salaries range from \$3,000 per year, upward.

The course will start on January 4, 1923.

Approved: T. H. SCOTT, Acting Director.

THE USE OF INSULIN.

Boston, Nov. 3, 1922.

Mr. Editor:

I have been asked by many physicians and innumerable patients, during the past few months, as to the use of insulin in cases of diabetes, and I would be very glad if you would publish this letter.

As I understand it, the only place where insulin is, or can be, of use is in those cases of diabetes (so called) that are dependent on an organic pancreatic condition causing a partial loss of function of the islands of Langerhans. This form of diabetes (so called) that are dependent on an organic pancreatic infection usually entering the body through the tonsils.*

In these cases we have a distinct destructive pathological process going on in the pancreas, and we use the symptoms of blood sugar, urine sugar, and patient's loss of weight as our indicator as to how the process is going on in the pancreas, whether it is progressing or is standing still. Now, adding to the food something which will change these symptoms without affecting the destructive process in any degree, it seems to me, is something akin to treating a patient with typhoid fever by keeping him in a bath sufficiently cool to cause him to have a normal temperature. You may have slightly increased the comfort of the patient and his friends who anxiously enquire daily as to what his temperature is, but you have obliterated your principal indicator as to how the process in the intestine and the poisoning of the system is going, and consequently have destroyed one of your best indicators for treatment. But have you done anything to alter or help in the slightest degree the process which is going on in the intestine?

Of course, where the destructive process in the pancreas has progressed so far (or is steadily progressive) that the patient cannot take care of the minimum necessary amount of carbohydrate to carry on life without causing a high blood sugar and sugar in the urine, then, under these circumstances, insulin or some similar material will give comfort to the patient by allowing his system to utilize more carbohydrate than it could otherwise, and, under these

*Diabetes (pancreatic) caused by infection of the tonsils. Stephen H. Blodgett, M.D. Penn. Med. Jour., March, 1921.

circumstances, its use would be justified just as is the use of morphine in the last stages of painful cancer or in the last stages of subacute glomerular nephritis.

Of course in the cases of diabetes (so called) due to a functional disturbance in the liver (the hepatic form of diabetes), which constitute the majority of the cases of so-called diabetes, a pancreatic extract or enzyme would be of extremely limited (if, indeed, any) use.

It seems to me that the story of insulin is to be analogous to that of pepsin. A great many years ago, when pepsin was first exploited, every person who thought he had any digestive disturbance took it and almost every physician ordered it for any of his patients who had any stomach symptoms.

Now in a case presenting stomach symptoms, the physician tries to find the cause and, if possible, remedy it, instead of indiscriminately giving pepsin, which, after years of use, it was learned did nothing to cure the pathological or organic condition causing the stomach symptoms in any of the cases, and only palliated the symptoms in a few cases.

STEPHEN H. BLODGETT, M.D.

PASTEUR CELEBRATION OF THE NEW YORK ACADEMY OF MEDICINE.

November 2, 1922.

Mr. Editor:

The speakers who are expected at the Pasteur Celebration of the New York Academy of Medicine are: Prof. Russell H. Chittenden, Dr. William H. Welch, Dr. Erwin Smith, Dr. Simon Flexner, Dr. Herman Biggs, and Dr. W. W. Keen.

The exhibition of books, photographs, medallions, manuscripts, etc., referring to the life work of Pasteur, is to be open to the public at the New York Academy of Medicine, 17 West 43rd Street, New York, for two weeks, commencing Dec. 27, 1922.

The public addresses are to be given at the Academy on the evening of Jan. 10, 1923.

Anyone having souvenirs or memorabilia connected with Pasteur's work is invited to loan them for the Academy exhibition, and address, for this purpose, the librarian of the Academy, Mr. J. S. Browne.

Very truly yours,

W. GILMAN THOMPSON.

142 East 62nd St., New York City.

[NOTE.—Louis Pasteur was born December 27, 1822. He died September 28, 1895.]

LO, THE POOR NURSE!

Jamaica Plain, 17 Farley Vale.

Mr. Editor:

As a graduate nurse, who for some years has adopted the rôle of professional invalid, it has fallen to me to know a good many nurses and not a few medical men, and out of my knowledge thus gained, it would be a gratification to be permitted, with the profound humility felt toward the doctor by all self-respecting nurses, to ask Dr. Morse if he is quite sure that his attitude toward the nurse is justified.

For the social worker, I hold no brief, having met but two in their professional capacity. Two were a "genteel sufficiency."

"The nursing contingent is largely composed of two elements—the 'Mollies and Maggies' from whom one of our leading doctors recently advised us to recruit our ranks, during the acute shortage of nurses, and the women who have had better social and educational advantages.

The former class stand in too much awe of any professional class, and though they often develop into the most skillful nurses, they are too timid to ask professional advice.

The others, some of them college graduates, or coming themselves from professional homes, are too keenly aware of the demands already made on the time of a busy doctor and hesitate to enlarge his burden by the asking of questions which they feel may seem puerile and unnecessary.

Many of us, in my own day, twenty-five years ago, eagerly absorbed every word and gesture of the clinician, as we stood at salute during "the visit" and, if we could, used a stethoscope afterwards to further enhance that knowledge which we were told we must not betray, but which might be useful if we found ourselves with a sick patient a hundred miles from a doctor. I feel pretty sure it is the same in these days, and that there are few nurses who would not eagerly grasp any information, either on the medical or nursing side, if offered by the doctor. As a rule the doctor is too apt to look upon the nurse as a person of inferior grade, who works for him rather than with him. He utterly fails to understand our appreciation of him, and that some of us who might be capable might have taken his own degree, except that we shudder at shouldering the responsibility which is his—which we do not want. This is in no sense a complaint against the doctor. No class of men are braver, more high-minded, more generous, or more genuinely helpful to the community or to the individual, but I beg for a closer unity; a better understanding if, working for a common cause, we could more truly work with each other.

In conclusion, may I respectfully remind Dr. Morse that a nurse before she becomes a nurse, is a woman and that every woman is born with the knowledge that the easiest way to win man's esteem, is to ask his advice; he may thus evaluate more clearly the poise and self-control attained by the woman who takes a nurse's training.

I am morally certain that Eve's first act on realizing Adam, was to ask him if he "thought the earth, like the moon, was made of green cheese," whereupon, Adam with no previous thought as to the texture of the earth, reversed his indignation over her impudent arrival and looking down upon "the woman whom God had sent him" said, "You dear little thing."

MARY J. BIDDLE, R. N.

JOINT MEETING OF BARNSTABLE, BRISTOL NORTH, BRISTOL SOUTH AND PLYMOUTH DISTRICT SOCIETIES.

Mr. Editor:

There was a meeting of Barnstable, Bristol North, Bristol South and Plymouth District Societies at the Lakeville State Sanatorium on Thursday, November 9th. About one hundred and twenty physicians were present. An excellent dinner was served at 1 p.m. Following the dinner there was a meeting, with Dr. Sumner Coolidge, president Bristol North Society, in the chair. Dr. John W. Bartol, president of the Massachusetts Medical Society, was the first speaker. He spoke briefly on some of the aims of the state society and asked for an opinion of those present on the action of having the next council meeting of the state society at Pittsfield. The sentiment was in favor of this, Plymouth District dissenting. The next speaker was George Chandler Whipple, Professor of Sanitary Engineering, Harvard University, on Mosquito Control in Massachusetts through the better dissemination of knowledge among the people, organized study of the habits of the insect, and the organization of the communities for its eradication.

Dr. Eugene R. Kelley, Commissioner of Public Health, next expressed his regrets that Dr. Richard T. Strong was, at the last minute, unable to be present, and asked the support of everybody for the Gorgas Memorial Institute. He then touched on the necessity of the recognition by the general practitioner of early tuberculosis in children, the education of the public on the curability of early cancer and

the better understanding between the general practitioner and the Public Health Department.

Dr. Benjamin White, Director Division of Biological Laboratories, demonstrated the Schick test for diphtheria. This concluded the programme.

This meeting was better attended than that of the previous year, and it was clearly demonstrated that the joint meetings are successful and should have a definite place in the Society.

Yours truly,

JOSEPH L. MURPHY.

Miscellany.

BRIDGEPORT'S HEALTH.

Under this title this Connecticut city resumes a monthly health report.

The work is organized under the following nine divisions and directors:

Administration, Miss Bessie O'Hara; Child Hygiene, C. C. Taylor, M.D.; Communicable Diseases, R. D. Fear, M.D.; Laboratories, Harriet Bixby, B.S.; Vital Statistics, Miss Cora Freyler; Sanitation, C. Howard Dunbar; Food and Milk Inspection, Harry Bartram; Waste Disposal, Health Officer; Assistant Health Officer, E. A. McLellan, M.D.

Dr. William Hall Coon is the Health Officer. He also acts as Registrar of Vital Statistics, acting under the Hon. Fred Alwater, Mayor (Ex-officio member), William L. Zipp, President, J. H. Callahan, D.D.S., Frank W. Stivers, M.D., and Antonio S. Renzi, Commissioners.

Six health stations have been organized and there are nine culture stations designed as sub-stations for laboratories. A hospital of 100 beds has been built for the care of patients, ill with communicable diseases; there is also a tuberculosis hospital. In addition to the nurses engaged in communicable disease work there are twenty nurses, to each of whom has been given a district of the city in which to work.

The report indicates that the Health Department is active and well organized.

NEW AND NON-OFFICIAL REMEDIES.

Lederle Antitoxin Laboratories: Diphtheria Toxin-Antitoxin (0.1L+).

H. A. Metz Laboratories, Inc.: Alumol.

H. K. Mulford Company: Hay Fever Timothy Pollen Extract—Mulford.

Parke, Davis and Company: Normal Horse Serum—P. D. & Co. Rabies Vaccine (Cunning)—P. D. & Co.

E. R. Squibb and Sons: Aene Vaccine. Colon Vaccine—Squibb. Gonococcus Vaccine. Meningococcus Vaccine. Normal Horse Serum. Pertussis Vaccine, Curative. Pertussis Vaccine, Immunizing. Purified Diphtheria Antitoxin (Antidiphtheritic Globulin). Pneumococcus Vaccine. Streptococcus Vaccine. Staphylococcus Vaccine. Streptococcus Vaccine. Tetanus

Antitoxin, Purified. Typhoid Vaccine. Typhoid Vaccine Combined, Immunizing.

RED CROSS NURSES FOR MAINE AND ALASKA.

The will of the late Jane A. Delano, who died in France while serving as director of the American Red Cross Nursing Service, provided for missionary nursing service.

Under this provision Mrs. Bertha R. Steeves has been selected for the Alaskan field and Miss Stella Fuller will assume similar work in the islands off the Maine coast.

These nurses will be under the supervision of the American Red Cross. *The American Journal of Public Health* has published the conditions of the bequest under which this service is to be maintained as follows:

Miss Delano's purpose in endowing this special service as a memorial to her father and mother was to create nursing facilities in isolated districts where no funds are available from governmental or other agencies or from individuals.

THE DANGER OF ASSOCIATION OF CHILDREN AND TUBERCULOUS SERVANTS.

THE New York Tuberculosis Association has made a forceful plea for care in the employment of those servants that are in close association with children.

The assertion is made that most domestic servants belong to the class which is particularly susceptible to tuberculosis because they are in the age when tuberculosis is most frequent and their indoor life and faulty habits predispose to the disease.

Again, these servants live in close contact with members of the family, handle the food and perform many kinds of personal service, especially to children. Affectionate children easily fall into the habit of kissing.

According to the last Federal census 156,667 persons were engaged in domestic service in New York City. At least one per cent., or 1560, were afflicted with tuberculosis. Several striking instances are given in the bulletin of the New York Tuberculosis Association as follows:

A young, robust Irish girl of 19 years, weighing 180 pounds, was employed as a waitress in a family with two children. She had a slight but persistent cough and tubercle bacilli were found in her sputum. One child developed a tuberculous hip and the other died of tuberculous meningitis.

The mother of one of my patients asked me to examine her houseworker for a cold which she had had for a "few weeks." The girl had extensive lesions in both lungs, a temperature of

102, and died in Bellevue Hospital of tuberculosis not two weeks later. The only child in the family ran an irregular fever for some weeks during several periods in the next two years. This was undoubtedly due to activity of a tuberculous infection.

A wet nurse was referred to me for examination before going to a new baby. She had been nursing a doctor's child who had just died and had been sent to the doctor by an eminent obstetrician. She had a massive infiltration of the entire right upper lobe with a small cavity. Her lungs had never been examined.

A nurse girl of a child ten months old who was running a prolonged irregular fever and who had a positive Pirquet, was found to have an active lesion at one apex. The child died a few months later. This nurse went to her own physician, who disagreed with the diagnosis and later was seen on the street taking care of another child. She refused to change her occupation, because she preferred the opinion of her own doctor.

Three infants who were in one nursery in a maternity hospital at the same time developed tuberculosis of the middle ear and mastoid at about six months. They had all been cared for by one nurse. By the time the infection was discovered she had left training and had gone West and so could not be examined. It was impossible to avoid suspecting her of being the source.

Three children in one family were found to be infected with tuberculosis. The source was not discoverable. In that household, however, three servants have since been found with pulmonary lesions on examination at the time of employment.

The remedy consists in requiring a certificate of health of all persons who care for children, and, indeed, for all domestic servants, for tuberculosis is not the only dangerous transmissible disease.

We guard against defective plumbing, drug addiction and other disease by a system of licensing. The requirement of a health certificate would add another step in the program to bring about diminishing tuberculosis.

OPEN MEETING FOR DOCTORS

MEDICAL ADVISORY COMMITTEE, INDUSTRIAL ACCIDENT BOARD.

November 22d at 4 p. m. in the large hearing room of the Industrial Accident Board, is to be held an open meeting for suggestions and expression of opinion in regard to the workings of the industrial act as affecting the profession.

All physicians who are interested are invited to attend and participate.

Certain insurance representatives are expected to participate.

F. J. COTTON, *Chairman*,
S. H. CALDERWOOD, *Secretary*.

PROGRAM OF MEETINGS OF MIDDLESEX EAST DISTRICT, 1922-1923.

Nov. 22, 1922. The relation of the Specialist to the General Practitioner. Papers by Dr. Brewster for the Specialist and Dr. Phippen for the General Practitioner. Discussion by Drs. Whittemore, Martin and Robbins.

Jan. 24, 1923. The Nursing Problem. Speaker to be announced later.

March 21, 1923. Mental Factors in Childhood. Paper by Dr. William Healy.

Apr. 18, 1923. Interpretation of Laboratory Findings. Papers by Dr. E. G. Crabtree and one to be announced later.

May 9, 1923. Annual Meeting.

All meetings except the annual meeting will be held at the Harvard Club in Boston.

A. E. SMALL, *Secretary*.

COMBINED MEETING OF MIDDLESEX SOUTH, NORFOLK AND NORFOLK SOUTH DISTRICT MEDICAL SOCIETIES.

In accordance with a request from the president of the Massachusetts Medical Society, a joint meeting of these three district societies will be held at Tufts College Medical School, Tuesday evening, November 21, 1922, at 8 p.m. sharp. The purpose of this meeting is to consider impending legislation relating directly or indirectly to the medical profession, to meet with the president of the Massachusetts Medical Society, and to become better acquainted with each other. Dr. John W. Bartol, president of the Massachusetts Medical Society, will talk on legislative programmes of the society.

The subject of the meeting will be "Legislative Talks of Interest to the Medical Profession," and the speakers, after Dr. Bartol, will include, Dr. James S. Stone, member of the committee on state and national legislation; Mr. Thomas C. O'Brien, district attorney of Suffolk county; and Mr. Benjamin Loring Young, speaker of the house. The meeting will be open to consider suggestions along legislative lines. This meeting will be of great interest to all, and should be supported by your attendance. A collation, no charge, will be served after the meeting.

ANIMAL EXPERIMENTATION.

WHAT ANIMAL EXPERIMENTATION HAS DONE FOR SCIENTIFIC MEDICINE.

WHAT SCIENTIFIC MEDICINE HAS DONE FOR ANIMALS.

These topics will be discussed at a public meeting of the Suffolk District of the Massachusetts Medical Society in Ford Hall, Ashburton Place, Boston, on Sunday, November 19, at 4 p.m. Dr. Charles W. Eliot, President Emeritus of Harvard University, will preside. The public are cordially invited. No tickets will be required.

SPEAKERS:

Dr. Walter B. Cannon, Professor of Physiology, Harvard Medical School. "The Value of Animal Experimentation to the Physician in His Daily Work."

Dr. Edwin H. Place, Physician-in-Chief, South Department, Boston City Hospital. "The Aspect of Antitoxins in Relation to Animal Experimentation."

Dr. Richard P. Strong, Director of the School of Tropical Medicine, Harvard University. "What Animal Experimentation Has Done for Exotic and Tropical Medicine."

Professor George H. Parker, Director of the Zoological Laboratory, Harvard University. "The Benefit to Animals of Medical Experimentation."

Dr. Lester H. Howard, Director of the Division of Animal Industry. "How Animal Experimentation

Has Assisted in the Control of Contagious Diseases Among Animals."

Dr. Arthur W. Gilbert, Commissioner of Agriculture of Massachusetts. "What Scientific Medicine Has Done for Farm Animals."

NOTICES.

The meeting of the Suffolk District scheduled for Nov. 22, 1922, is most important. See editorial in the issue of Nov. 9 for details.

THE BOSTON ASSOCIATION OF CARDIAC CLINICS announces an open meeting at the Massachusetts General Hospital, November 16, at 8.15 P. M. Subject: "Syphilis of the Heart and Aorta." Papers will be read by Dr. Walter Anderton of the Presbyterian Hospital, New York City, and Dr. William D. Reid of the Boston City Hospital. Discussion will be opened by Dr. William David Smith of the Massachusetts General Hospital.

BOSTON MEDICAL HISTORY CLUB.—Meeting at the Boston Medical Library, Friday, November 17, at 8 P. M., in commemoration of the third centenary of the birth of Molière (1622). Dr. Joseph W. Courtney will read on "Molière and The Faculty." It is suggested that remarks and contributions from other members be, so far as possible, confined to this subject.

JOHN W. CUMMIN, *Secretary.*

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS.—Meeting and dinner at Copley-Plaza Hotel, Monday, November 27, 6:30 P. M. Symposium on "Back Disabilities." "The Diagnosis of Back Disabilities." Dr. J. W. Sever; lantern slides. "Postural Defects." Dr. Lloyd T. Brown; lantern slides. "Backache in Women with Reference to Industrial Conditions." Dr. Stephen Rushmore. "The X-Ray Standpoint." Dr. A. W. George. Discussion opened by Dr. Francis D. Donoghue.

WM. FEARCE COUES, M.D., *Pres.*
HILBERT F. DAY, M.D., *Sec'y.*

ESSEX SOUTH DISTRICT MEDICAL SOCIETY meets Wednesday, December 13th, at Beverly Hospital, Beverly, 6 P. M. Speakers: Dr. W. P. Bowers, Managing Editor *Boston Medical and Surgical Journal*; Dr. John D. Adams, Boston; Dr. P. P. Johnson, Beverly.

R. E. STONE, *Sect'y.*

BEVERLY HOSPITAL.—A cancer clinic will be held at the Beverly Hospital, Thursday, November 16, at 4 P. M., in observation of cancer week. Doctors and nurses invited.

R. E. STONE, *Sec. of Staff.*

MEMORIAL FUND.

TO THE HONOR OF DR. SAMUEL FULLER.

1. George Washington Gray.....\$5.
2. Charles Montreville Green.....\$5.
3. Robert Montreville Green.....\$5.
4. John Woodbury Stimpson.....\$5.
5. Joseph Payson Clark.....\$5.
6. Francis Dennis Donoghue.....\$5.
7. William H. Blanchard.....\$5.
8. William E. Curtin.....\$5.
9. Walter Prentice Bowers.....\$5.

CORRECTION.

Among the News Notes in the *Journal* on page 647, vol. 187, No. 18, the former position held by Dr. Benjamin Spector was incorrectly stated. Dr. Spector's former affiliation was with the New York University and Bellevue Hospital Medical College.

DISEASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING OCTOBER 28, 1922.

Disease.	No. of Cases.	Disease.	No. of Cases.
Anterior poliomyelitis.....	4	Ophthalmia neonatorum.....	8
Chicken-pox.....	60	Pneumonia, lobar.....	67
Diphtheria.....	237	Scarlet fever.....	129
Dog-bite requiring anti-rabic treatment.....	2	Septic sore throat.....	1
Encephalitis lethargica.....	2	Syphilis.....	27
Epidemic cerebro-spinal meningitis.....	3	Suppurative conjunctivitis.....	3
German measles.....	5	Trachoma.....	1
Gonorrhea.....	80	Trichinosis.....	3
Influenza.....	14	Tuberculosis, pulmonary.....	112
Malaria.....	1	Tuberculosis, other forms.....	19
Measles.....	215	Typhoid fever.....	14
Mumps.....	47	Whooping cough.....	143
		Hookworm.....	1

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Hyannis,—February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol:—South District:—Fall River,—May 3, 1923.
Essex North District:—Haverhill, (Semi-Annual Meeting)—Jan. 3, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Suffolk District:—Combined meeting of Boston Medical Library and Suffolk District, November 29, 1922; December 27, 1922; January 31, 1923; February 28, 1923; March 28, 1923; Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carol, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District:—Meetings; Wednesday, January 31, 1923.

Worcester District meetings in Worcester, Dec. 13, 1922, Jan. 10, Feb. 14, March 14, April 11 and May 9, 1923, the last named date being the annual meeting.

The New England Ophthalmological Society meets at the Massachusetts Charitable Eye and Ear Infirmary, 233 Charles Street, Boston, Tuesday, November 21, at 8 P. M. Hospital Cases and Case Reports. Paper: "Tumors of the Optic Chiasm." Dr. Harvey Cushing, Dr. Paul Martin.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

December, 1922. New England Dermatological Society Meeting, Wednesday, December 13, 1922, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary.

December 16-30, 1922. American Association for Advancement of Science meets in Boston.

January, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston, W. H. Allen, Mansfield, Mass., Secretary.

February, 1923. New England Dermatological Society Meeting, February 14, 1923, at 3.30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

March, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary.

April, 1923. New England Dermatological Society Meeting, April 11, 1923, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston, W. H. Allen, Mansfield, Mass., Secretary.

May, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided). American Pediatric Society Meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind., H. C. Carpenter, Secretary.

June, 1923. American Medical Association, San Francisco, June 25-29, 1923, Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923. Massachusetts Association of Boards of Health, July 20, Nantasket, W. H. Allen, Mansfield, Mass., Secretary.

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Address.

SOME PROBLEMS OF READJUSTMENT IN MEDICAL PRACTICE.*

BY W. B. CANNON, M.D., BOSTON.

It is altogether natural that the professionally trained person should find his chief satisfaction in the exercise of those functions which have been specially disciplined and prepared for a particular service. During the late war the medical officers assigned to an administrative job or given "paper work" to attend to were inclined to resent it or were impatient under it—they had had experience as physicians and surgeons and were eager to show their skill in the performance of professional tasks. And so it is with us in our relations to the people whom we serve. Ordinarily we feel that we are showing to a satisfactory degree our usefulness to society if we as members of the medical profession do our duty in caring for the sick.

Good reasons can be found for feeling a satisfaction in this attitude. The sick are in need, often in sore need, of what we have to give them. And there is much comfort not only for them but also for us in the beneficent results of intelligent medical and surgical care. The intimate personal relations between doctor and patient have a sanctity and a grace which bring forth the rarest fruits of friendship. That, it is argued, is the natural work for us physicians, the

work for the individual, for the man or woman or child who is ill or who is broken and who needs us.

THE WIDENING OF PROFESSIONAL INTERESTS.

There are other relations, however, which exist between us and our communities which we are prone to overlook in the very intensity and keenness of our devotion to professional service. We are physicians, to be sure, but we are also citizens. And as citizens we not only have, I believe, the routine duties of citizenship, but also obligations to the public at large, due to our special knowledge of matters which are of interest and of vital importance to our fellows. Many years ago, when I was a medical student, I recall a short address which the late Professor W. T. Sedgwick made to a small group of us, in which he urged that we were justified in working intensively on strictly professional lines until we reach the age of 35 or 40, but that thereafter we ought to set aside at least one day each week for public service. His own career was a splendid example of disinterested usefulness in public affairs, and the advice he gave was emphasized by his own accomplishments. What he urged upon us then, I wish to urge today—a broadening of the sense of professional duty, a realization of the general needs of our communities that are quite as critical and should be quite as appealing to our professional conscience as the individual needs to which we traditionally limit our attention. The motive for this wider range of action is the same motive that serves

*An Address to the graduating class of the Women's Medical College of Pennsylvania, June, 1921.

for the narrower one—the opportunity for service. And the reason why we should feel the potency of this motive is likewise the same for both—a special knowledge, which we possess and which renders us peculiarly serviceable citizens.

The evidence of community need for the kind of intelligence which physicians possess is found in various relatively new understandings of the sources of misery and sickness and of the unhappy consequences which flow from them.

THE IMPORTANCE OF ATTACKING DISEASE-PRODUCING CONDITIONS.

Social studies have revealed that considerable groups of our population are involved in the vicious circle of miseries—poverty and ignorance leading to unhygienic living; unhygienic living leading to ill health and physical inefficiency; these in turn leading to unemployment and further poverty. And so the round of wretchedness continues. Is it not clear that the circle is not strategically well attacked at the stage of sickness, the stage at which we as conventional practitioners of the art of healing are called in? No, the point where the circle should be broken is at the earlier stage of ignorance and unhygienic living. The broadening of our professional services would lead us to increase our influence at that point, where there is chance for preventing the more dangerous events of the cycle.

Again, industrial hygiene has demonstrated the existence of a web of lines on every side connecting the individual with his fellows and with the part he plays in the complex of modern industry. Thus the use of measures to reduce the incidence of sickness and injury of working men has been shown to yield a wide variety of benefits. The worker himself is saved the economic loss which arises both from being out of work and from having extra unnecessary expense. Those who are dependent on him are protected from slipping into the vicious circle of poverty and disease which is an ever-present possibility. And further, industry also is protected from the disturbances and needless costs that ensue when workers must constantly be replaced. All these values are obtained when attention is paid, not to the sick, but to the well, with the object of keeping them well.

Better than anything else the experience with certain infectious diseases has proved, and proved overwhelmingly, the advantages to mankind of medical knowledge applied to groups with the purpose of preventing disease rather than to individuals with the purpose of curing them. The sanitary measures which have been employed to eradicate hookworm and yellow fever, malignant malaria and typhoid are a sufficient witness to the possibilities of improving the physical welfare of vast populations through the services of preventive medicine. Who will set a limit to further developments by methods and in directions suggested by these triumphs? Have we

not the right to hope that with wider diffusion of knowledge and with the general awakening of intelligence as to the nature and spread of infections, other devastating diseases will likewise be suppressed?

The lesson of these experiences we as a profession have been too slow in learning. Too long we have been on the defensive in the fight against sickness and premature death. Too tardily have we accepted the military doctrine that the best mode of defence is to attack. Only in recent years have we begun to realize that it is part of our professional service to do our best to eliminate the conditions which lead to the physical distress and damage and the economic inefficiency of our fellows.

There is no question of the urgency of the need for professional medical service outside the sick-room. It has been estimated that in our country every fifty seconds a person dies from preventable disease. That means the appalling number of more than 630,000 such deaths annually. Think of the pain and bereavement and the awful waste of life that that huge figure implies! And in economic terms it is equally astounding. It has been estimated that unnecessary sickness and premature death is costing the United States every year more than two billion dollars. Yet to a great degree these evils are due to ignorance and can be abolished by knowledge and by conduct based on knowledge. There is little doubt that large masses of our population are a full generation behind what the medical profession knows is desirable in the practices of personal hygiene and in the avoidance of disease by employment of preventive measures.

The reason should now be clear why we as physicians have public as well as personal services to perform if we are to do our full duties as citizens. If we were living in an autocracy, we could influence high authority and have benefits wrought by edict. But we live in a democracy, where education must take the place of paternalism, and the people must win their own benefits through knowledge and intelligent action. Because of the social ramifications of disease, therefore, we are finding imposed upon us a new sense of social responsibility and an obligation to use our professional knowledge for the welfare of the group as much as for the individual.

PUBLIC EDUCATION AS A MEANS OF DISEASE PREVENTION.

Already an organized movement in the direction of public education has been started. Eleven years ago there was established in the American Medical Association a Council on Health and Public Instruction. From the start it has had as one of its objects the spreading of information among our people regarding the great advances in scientific medical knowledge during the past fifty years and the possibility

of using that knowledge for the prevention of disease, the reduction of the death rate and the promotion of healthier living. Let me tell you of some of the activities of the Council in this aspect of its work.

One of the first things we did was to organize a speakers' bureau. After securing promise of the services, in all parts of the country, of competent physicians, capable of talking with interest and authority on questions of personal and public health, we sent a list of the speakers to about 20,000 Women's Clubs. A pamphlet was prepared describing to local groups the methods which had been found most effective for holding a successful meeting. Speaker's handbooks were assembled, giving in brief compass reliable information which could be added, when thought desirable, to any theme which the speaker intended to develop. Standard sets of stereopticon slides were prepared for temporary loan wherever they might prove serviceable. By these means meetings were arranged all over the United States, and thousands of people were reached.

Another method for diffusing informative matter was through use of daily and weekly journals. For many years a printed sheet containing news items or topics of medical interest was sent regularly to papers throughout the land. The editors soon became convinced that our motive was disinterested public service and had no ulterior intent. More and more this material was used for news purposes and as a text for editorial comment. No doubt through these channels, hundreds of thousands of our population have had opportunity to learn of the most recent advances in medicine.

Still another activity of the Council has been the publication of a series of standard pamphlets for wide distribution. These have been written by the best available authorities. For example, the pamphlet on Tuberculosis was prepared by Dr. E. R. Baldwin, so long associated with Dr. Trudeau at Saranac; that on Typhoid Fever by Professor E. O. Jordan of the University of Chicago; that on Hookworm by Dr. J. A. Farrell of the Rockefeller International Health Board; the pamphlet on Flies as Disease Carriers by L. O. Howard, the well-known entomologist; and that on Pure Water by Professor G. C. Whipple of Harvard University, an expert sanitary engineer. Some of our publications have had a very extensive use. In one year more than 300,000 copies of Dr. Emmett Holt's pamphlet on the Care of the Baby was sent broadcast to mothers by a firm selling babies' blankets! And the Department of Education of the United States Government made use of 750,000 copies of the little publication on the Sanitary Requirements of a Rural School.

A Subcommittee of the Council, on the Conservation of Vision, brought out the fact that in our country the dependent blind cost approximately \$15,000,000 annually. It was estimated

that nearly 80 per cent. of this blindness was preventable if only people had better knowledge of the causes of blindness and exercised due caution based on that knowledge. Admirable pamphlets on the hygiene of the eye and protection of the eye against damage, written by experts, have been prepared and are being used by speakers, and by others, for teaching purposes.

Another Subcommittee of the Council which has done excellent service is that on Public Health Education Among Women. This aspect of the organization was testimony to the fact that much of the work for public health is in its essentials nothing more than good house-keeping, applied on a large scale. It was realized that already in many cities the principles of cleanliness, neatness and good order had been insisted upon by women's organizations and that the public spirit which prompted these activities could be counted upon in other efforts to promote the happy chances of life. Representative women physicians have served on this Committee and have been effective intermediaries between the organized medical profession and the natural interest of lay women in establishing circumstances favorable to better health.

In this connection another great public-spirited body should be mentioned—the Women's Foundation for Health. This is a federation of 14 national women's organizations, having a total membership of 10,000,000. Its aim is to push an aggressive campaign for the attainment of vigorous health by women. According to its enquiries, out of 100 girls examined only 10 are really well. Another 10 need to go to a doctor or a dentist or surgeon for curative or corrective attention. The remaining 80 of the 100 are suffering from three to eight symptoms which keep them below par—symptoms which are the result, not of disease, but of faulty health habits. These figures can readily be credited when we realize that the examination of an enormously large number of men in the draft revealed that from 33 to 50 per cent. of them were unfit for service, because of physical or mental defects. The object of the Women's Foundation, then, is to strive, not for health as the negation of disease, but for positive health, a degree of health that is attended by vigor and energy and fitness for all the stresses that life may bring. In the Foundation, as one of the constituent members, is the Medical Women's National Organization.

Besides these activities we have seen develop nation-wide campaigns against tuberculosis and venereal disease, public efforts in many places to lower the rate of infant mortality, an extensive home-nursing service instituted by the American Red Cross, and the spread into ever-enlarging fields of State and national health functions.

What does this strange evolution in medicine imply? Where does the general practitioner fit into these new relations which are aris-

ing between voluntary or professional health organizations and the public? What attitude shall the individual physician take towards attempts to improve the health of our people by lectures and classes and organized propaganda?

THE DOCTOR AS A PROMOTER OF PERSONAL HEALTH.

There is, I believe, an unfortunate tendency among us to try to draw a sharp distinction between the preventive and the curative aspects of medical service. The preventive work, it is said, should be restricted to State and national agencies or to voluntary organizations composed largely of laymen. And the practice of curative medicine should be solely the service of the private practitioner. As a matter of fact, it is difficult to separate definitely these two aspects of medical activity. The curative treatment of the insane and the delinquent is unhesitatingly admitted to be a State function. And when treatment is the means of prevention, as in the case of smallpox, for example, again the community, not the individual physician, becomes responsible for the patient's care. On the other hand, the private practitioner called to a case of typhoid fever, for example, at once has the duty thrust upon him of warning the whole community of the danger, and setting at work all the machinery for discovering and cleaning out the source of infection. Obviously there are overlapping areas in the application of preventive and curative measures that do not permit hard and fast boundaries to be drawn. In the common territory it appears that the agents of preventive medicine have been encroaching or threatening to encroach on what have been regarded as the privileges of curative medicine. Bitter resentments have thus been aroused, and in consequence societies have passed strong resolutions denouncing what is designated "State medicine" and calling a halt in its further progress. The conflict which has thus arisen is concerned with the theme we have been considering and may properly be discussed in relation to it.

The difficulties in the present situation seem to me to be brought a step nearer resolution when we find the proper answer to the question, What is the function of the medical profession? If we knew nothing of the antecedents of disease and accident we might be justified in answering that our function is solely to treat the sick and injured. But, as we have already noted, we know with certainty the approaches to disease and the ways in which the organism may be damaged, and, therefore, it becomes as much our duty to warn against the dangers as it is for the trackman who detects a broken rail. The service of the profession, then, should be not merely curative but also preventive—we are charged with promoting the physical and mental health of the people. If that statement is accepted, no difference will be found between the functions of the State and national agencies for the promotion of public health and the functions of the doctor in private practice.

Now the further question arises as to whether the private practitioner has fulfilled to a satisfactory degree his functions. The declaration has been made that he has not. It has been pointed out that the large amount of preventable disease in our population, the wide prevalence of uncorrected physical defects in our young men as revealed by the draft, and the ignorance among laymen of elementary principles of hygienic living are illustrations of the failure of the medical men to render their full duty to the communities they serve. The indictment has some justification. I do not believe, however, that physicians are alone at fault. Both they and the people of their communities have maintained the traditional attitude that the doctor's services should be limited to the care of the sick. It has not been expected that he would attend to ailments which are not called to his attention, or that he would look after people with the object of keeping them well and in a condition of high efficiency.

And let me ask still another question: Is not the theme we have been considering—the broadening of the sense of professional duty so that it includes the promotion of health—is not this theme the correct answer to make to the charge that doctors are failing to give the people proper care, and is it not the correct solution of the internal conflict between the private practitioner and the medical agents of the State? Clearly the physician cannot engage in the promotion of the personal health of his people without their coöperation. There is need for instructing the public in the advantages to be derived from securing health and physical efficiency instead of being repaired after a breakdown. But let people once learn that minor ills can spoil the keen edge of living, that it is well worth while to get into good physical condition and stay there, and that, like less complicated mechanisms, the human body needs periodic examination to determine whether it is standing the stresses to which it is subjected, and the welfare of our population would be raised to a level not hitherto attained. Many a physician learned during the war the importance of the morning "sick call" as a means of detecting the early stages of disorder. And every physician knows that it is in the early stages that he is best able to give the most effective treatment. If only through public education the physician might become the conservator of the family health, keeping the members well so far as possible and being ready to care for them when they fall ill, an enormous benefit would be wrought in the well-being of our population. And it would establish a new position for the doctor. He would become a leader in bringing about better modes of living. He would be a teacher of his people in ways of avoiding disease, and an even more effective collaborator than at present with the officials of the State in the protection of others against the spread of infections.

THE DOCTOR AS AN EDUCATOR AND COUNSELLOR.

It is obvious that such service as I have suggested would require changes in medical education. Greater emphasis would have to be placed on the standards of health, the elements of personal hygiene, the appropriate physical exercises at different ages, the influence of fatigue on bodily processes, the effects of worry and anxiety and deep emotional experiences, the dietary requirements for various conditions of life and labor, suitable clothing, and the best modes of securing rest and sleep—all these features would have to be understood and made as impressive to the lay mind as the transfer of infections, if we are to engage in an aggressive campaign for efficient living. It is obvious also that no such campaign can be waged until laymen are ready to coöperate in carrying it on. Already there are signs, however, that people are being awakened to the possibilities of individual health conservation. School inspection has shown to many communities that by means of tests, even though they may be applied by inexperienced persons, defects are discovered and remedied, with marked benefit to the children. Industrial physicians are familiarizing large bodies of industrial workers with the idea of preventive medicine applied to the individual. And the Life Extension Institute in New York has likewise done much to popularize the view that human well-being and efficiency should be sought and can be secured, if only physicians and laymen work together in striving for them.

At no point is an attack on physical weakness and defect and on disease itself undertaken with greater strategic advantage than in relation to children. In them many of the troubles with which the doctor deals are found in their incipency—the hopeful stage. Furthermore, childhood is a time of life when prevention and early treatment are especially important, because uncorrected faults may have far-reaching consequences. No better illustration need be given than that of imperfect vision, which, if not attended to, may lead stepwise to retardation in classes, discouragement, dislike of study and reading, and finally to departure from school, with a poor mental equipment and a handicap for future work. It is the early correction of such difficulties that saves the disappointments and distresses of later years. Again, if children are taught the principles and application of healthful living, they are likely to carry home both the knowledge and the practices which they have acquired. We must remember that children have a public opinion of their own, often more loyally supported than the judgment of their parents, and that through this opinion attitudes towards health measures are established which may influence the present generation but will be sure to influence the next. The securing of a wider diffusion of knowledge among children regarding public and personal hygiene is, therefore, one of the most powerful

and certain methods of promoting community welfare. In this relation, perhaps, the women physicians of the United States have an especially good opportunity to extend their professional functions.

If through popular education of children and adults the private practitioner should in the course of time be expected to practice both preventive and curative medicine in the families he cares for, his function as an educator and leader in public welfare would become much more important than it is now. His service as a diagnostician and doctor of medicine may still be in competition with others who treat disease, but his service as a developer and preserver of personal health would link in with the functions of the State. He would quite naturally be foremost in securing expression of popular will with regard to such public affairs as the betterment of living conditions, the eradication of evils threatening the integrity of the race, and the carrying out of programs for attaining a higher degree of physical and mental efficiency. Because his interest in the personal welfare of his people would have become primary, he would be in a strong position when questions affecting public welfare are raised.

THE DOCTOR AS AN INTERPRETER OF CONDITIONS AFFECTING PUBLIC WELFARE.

We are beset by questions affecting public welfare. Forgetful of the lessons which mankind has learned, and ignorant of the triumphs of preventive medicine, agitators are conducting active propaganda against the medical inspection of school children, against the use of preventive measures in such pestilences as smallpox and typhoid fever, and against any limitation of the liberty of carriers of disease. So long as we are merely practitioners of medicine our counsel with regard to the questions raised by these propagandists is not likely to be sought. If we should take on the larger service of being teachers and advisers of those we serve, we should quite naturally become interpreters of the facts on which are based the regulations and practices employed to promote the public health. We should find it one of our duties to point out the reasonableness of the rules which the neighborhood makes for its own protection. And although preventive measures necessarily trespass on personal rights, even the most extreme individualists must recognize the force of a public opinion which is based on an understanding and well-informed intelligence.

Another form of propaganda that is constantly going on is that against the use of animal experimentation for medical progress. Atrocious falsehoods regarding the treatment of animals in laboratories and utterly absurd denials of the benefits to mankind derived from application of the experimental method to problems of disease are widely circulated in our country by societies whose avowed object is the total aboli-

tion of so-called "vivisection." This effort hits directly at the most effective means that is known for discovery of the nature and treatment of disease. Success of the effort would be disastrous; for many problems still remain to be solved, and only through careful tests on lower forms of animal life can mankind be saved from continued disability and premature death. All these facts, long known to physicians, need to be explained to laymen. The doctor as an educator and adviser would be in an influential relation to the public as he told the story of medical progress and the debt we owe to lower animals for our saving knowledge of bodily processes and the ways in which they may be disturbed.

Still another menace to the best interests of public welfare lurks in the development of quackery and sectarianism in medicine. The special modes of treatment—such as the blue glass fad, magnetic tractors, naturopathy, osteopathy, chiropractic, etc.,—have a natural history of being advocated by zealots, accepted by the uncritical and the seekers after novelty, of flourishing for a time and then passing away entirely or leaving in the body of medical practice any good they may have held. It has been customary for the medical profession to oppose the progress of these cults by advocating repressive legislation. Doctors seem at times to have regarded the license to practice medicine as a protection of their professional rights rather than as a protection of the public. Our attitude directly hostile to legislative recognition of new modes of treatment has been in the main neither dignified nor effective, and has led to unfortunate misinterpretation of motives. Again, the remedy lies in popular education, in an enlightening of people regarding the difference between cautiously progressive scientific medicine and pseudo-scientific propaganda. And again the doctor as an instructor and counsellor regarding the nature of disease would be in a favored place for teaching the limitations and dangers of ill-founded fantastic dogmas of both pathology and treatment.

This is, I believe, a momentous time in medical history. Knowledge has developed so rapidly and so extensively that no one mind can compass it. Practice has required such special methods and skill that no one individual can command acquaintance with all the procedures. Preventive medicine has demonstrated its values so thoroughly that everyone recognizes the propriety of State action when the public health is menaced. In this unsettling of traditional customs of medical practice, in this bewildering time when the relations of doctor and patient are continually shifting and there are conflicts of methods and uncertainties of future developments, what are we to do? I have tried to make clear that, no matter what happens, we must keep foremost our ideal of service. As practitioners we must engage in preventive medicine as well as in curative medicine, be-

cause in both ways we know how to help our fellow men. But industry and the State are likewise laying emphasis on preventive medicine, and the specialist is proving his claims to greater skill and insight when difficult cases appear. What, then, is to become of the general practitioners? Resolutions passed by medical organizations setting limits to this and that function of professional service will not determine events. Constructive programs are required, based on consideration of the needs of the people and the abilities of physicians to supply those needs. In the suggestions which I have offered that the general practitioner shall become an educator and an aggressive worker for health, there is much that is not new, or foreign to the labors he has long been performing. Only a stronger emphasis is laid on the private practice of preventive medicine than has been common in the relation of doctor and patient in the past. Other and better solutions of the problem of assuring adequate medical service may be suggested. And no full program can be laid down at this time.

THE MEDICAL PROBLEM IN RURAL COMMUNITIES.

The solution of these problems of readjustment of medical practice is only a part of the larger theme which we have been considering—the possibility of a better civilization in our country by medical attention to human needs. Another aspect of the same theme is beginning to loom large in rural communities. Studies made in different parts of the United States have revealed that the practitioners of medicine in the small towns are in the main elderly men—men whose age averages between 55 and 60 years. The fact is being recognized that the graduates of our medical schools are not being attracted to the country. The facilities with which they have become familiar in their medical course are not provided there—the library, the laboratory, the x-ray apparatus, the operating room and the hospital ward. I have known of physicians who have left rural practice because they felt that they could not conscientiously treat the sick unless they had the opportunities regarded by them as essential for making a thorough diagnosis. What is to be done under these circumstances? At least 40 per cent. of our population dwells on farms or in small towns. The economic stability of the nation depends on the products of the labor of these citizens. They should have just as good and just as well assured medical service as any other part of our population. Ten or fifteen years hence, when the elderly doctors have passed away, are these people to be left without adequate medical attention? Already in two New England States towns have guaranteed funds to induce physicians to come and serve them. Shall we look forward to a time when as a rule physicians must be subsidized to undertake country practice? Will State medical officers be sent to care

for outlying communities? The suggestion has been offered that the best mode of solving this serious problem lies in the establishment by communities—by counties or groups of counties—of public hospitals, offering all the conveniences needed for first-class practice. And the argument has been put forth that such a hospital in a center from which radiated a system of good roads could provide medical care for a wide area. Further, because of the common use of the hospital, physicians would be frequently brought together in consultation and conference, with the result that professional discouragement and decay resulting from isolation would be remedied and the young practitioner would be attracted. Again the solution which has been offered may not be the best one and on further examination may be shown to have grave defects. And even if it were regarded as the most satisfactory way out of the crisis which seems to be approaching in rural life, there would remain the necessity of persuading people of its desirability and of the reasonableness of spending public money for hospital construction and upkeep.

Such, then, are some of the puzzling questions which are of concern not only to the medical profession but to the public at large at this time. We, as servants of the common weal, should become keenly conscious of them and give our best thought to answering them. Attention to these questions will take us out of the routine of our daily duties, and bring us into relation to others who as public-spirited citizens are looking forward to and working for a better day. With them we must think out as clearly as possible the conditions which will be best for the welfare of all people and then strive to establish them. The opportunity for both professional and public service is a great one for us all, but especially for those who are just now entering on the duties of physicians.

Original Articles.

THE FAILING HEART.*

BY PAUL D. WHITE, M.D., BOSTON.

INTRODUCTION.

HEART FAILURE consists of the inability of the heart to carry on a circulation sufficient for the ordinary life of an individual. It is thus a relative term. The amount of work routinely performed by one man may suffice to produce heart failure in another man who does not show any cardiac weakness in the habitual pursuits of his life. Mackenzie defines heart failure as "the condition in which the heart is unable to maintain an efficient circulation when called upon to meet the efforts necessary to the daily life of the individual."

The term "cardiac insufficiency" is, on occasion, preferable to "cardiac failure," for when the latter expression is used the average man in the community at once thinks of failure in its extreme phase when the victim is about to depart this life. "Decompensation" is an unsatisfactory term which I for one would discard with pleasure.

In general, there has been too much mystery about heart failure—in the books too much about back pressure, reserve force, restored compensation and all. The complication of the discussions of the subject has clouded it. There is still something to be learned about heart failure, but what is known may be, I believe, more clearly expressed than often one finds it.

How is the circulation normally maintained? By the proper action of the heart muscle and cooperation of arteries and capillaries. That circulatory insufficiency which is the result of failure of the peripheral circulation, and not of heart failure, I shall not discuss, except clearly to point out that these two causes—cardiac and arterial—of circulatory failure must be differentiated. Examples of peripheral circulatory failure are found in ordinary syncope, so-called surgical or traumatic shock, endarteritis and thrombosis.

TYPES OF HEART FAILURE.

Lewis has differentiated two types of heart failure or cardiac insufficiency, one in which dyspnea and congestion are the chief features, and the other in which pain, severe or mild, in the region of the heart, is induced by exertion. The former he has called "failure of the congestive type," and the latter "failure of the anginal type." Sometimes both pain and congestive symptoms and signs occur together, but more frequently they seem to be separate. It should be emphasized that angina pectoris or heart pain may be just as important evidence of cardiac insufficiency as edema; in fact, often much more so, if severe. The term "pseudo-angina" is a poor one and should be dropped. Many of the cases showing it prove later to have the so-called "true angina pectoris," dependent on actual sclerosis of the coronary arteries, and those that do not can be better classified, as I shall show shortly. There may, of course, be all gradations of both types of heart failure.

CAUSES OF HEART FAILURE OF CONGESTIVE TYPE.

I shall discuss now both types of cardiac failure or insufficiency from the standpoint of cause, diagnosis and treatment. First let me take up the "congestive" type. The etiology for heart failure is fundamentally the same as that for heart disease plus the necessary over-exertion or excitement which acts as the last straw to break the camel's back. The common causes of heart disease are, therefore, the common basic causes of heart failure. Arteriosclerosis, rheumatism, chronic hypertension, syphilis and thyroid intoxication are in about

*Read before the Norfolk District Medical Society, March 28, 1922.

that order the important factors. Sometimes two or three of the causes are combined in an individual case. But in the study of a patient with symptoms or signs of cardiac insufficiency it is not enough to make a diagnosis of heart failure; it is just as important to analyze and state the fundamental cause if it can be found, and if it cannot be found, it should be so declared. Also structural changes in valves and heart chambers should be ascertained and diagnosed, for they do make a difference in prognosis and treatment. The pendulum has begun to swing over from the former complacent attitude of the medical profession in the diagnosis of mitral regurgitation and cardiac dilatation towards simple expressions of functional capacity, but it tends to swing too far. The stethoscope is still a useful instrument, as are also the blood pressure cuff, the x-ray and the electrocardiograph. We must simply not read into their findings undue significance. In the presence of heart failure I like to know, for example, whether the patient is one showing also rheumatic heart disease, mitral stenosis and auricular fibrillation, or syphilitic heart disease with aortic regurgitation and normal rhythm. Prognosis and often treatment will vary according to etiology.

DIAGNOSIS OF CONGESTIVE FAILURE.

The first evidence of the onset of congestive failure is dyspnea on some ordinary exertion. From this symptom a steady progression to edema, cough and cyanosis may occur and of course when these develop the diagnosis becomes obvious. With dyspnea alone, however, diagnosis is not so simple. Probably just as frequently, or even more so, dyspnea is a symptom of nervous fatigue as expressed by the so-called effort syndrome. In young people this condition of exhaustion of an oversensitive nervous condition is very common. We found it everywhere in the army and I find it everywhere in civil life. Girls labelled "mitral stenosis" are as likely to have "effort syndrome" as mitral stenosis; young chaps labelled "gassed in France" are much more likely to have "effort syndrome" than any effect of the gas on their hearts; in fact, almost certainly so. This is a very vital matter to recognize, for the whole future of the individual may depend on the early and proper realization of the condition. I have seen a girl of about 20 who had been kept as an invalid for several years with the warning never to marry who had just as normal a heart as yours or mine, and perhaps more normal. She was of nervous temperament, showed dyspnea on exertion and had a sharp first sound which had been wrongly called a presystolic murmur. It required much explanation on my part to convince her that she was just high strung but normal as to her heart after the Lomb's life she had lived for years. Very helpful points in distinguishing between dyspnea of heart disease and of effort syndrome

are that there is apt to be more palpitation with effort syndrome and that there is often actually more heart pain of one kind or another. Very helpful additional evidence against heart disease as the cause of the shortness of breath is the story in young people of dizziness with or without actual syncope. If a young girl comes to me, complaining of fainting, palpitation and shortness of breath, I should be right ninety-five times out of a hundred if I considered her a case of effort syndrome rather than of heart disease even before I examined her. The term "effort syndrome" is weak in that it does not express the effect of excitement on such hearts, often much more striking an effect than that from effort. Neuro-circulatory asthenia was a term used in this country for the condition during the war. Nervous heart is another term in use.

I should like to make one further observation about this very important condition of effort syndrome, and that is, that it may coexist with heart disease, especially in young people. I find almost invariably that the symptoms in such people are ascribed by the doctor to the heart trouble, when as a rule a considerable percentage, and sometimes even a great preponderance, of the symptoms are the result of the associated condition of effort syndrome.

Other less common conditions than effort syndrome, to be differentiated from heart failure, are hyperthyroidism and subacute or chronic infections, which after all really express themselves cardiovascularly as effort syndrome. Tuberculosis, subacute endocarditis, and low-grade septicemias are particularly apt to be mistaken for slight heart failure. Anemia, primary or secondary, and malignant disease are other conditions, and chronic nephritis still another, if producing toxic symptoms, to be distinguished from a failing heart. Chronic bronchitis, hepatic cirrhosis and phlebitis with edema may rarely simulate cardiac insufficiency. A recurrent acute endocarditis in an old rheumatic heart is particularly apt to be confused with heart failure. Careful temperature records and blood counts are often necessary.

What about asymmetrical failure of the ventricles? And how does the old back-pressure theory fit into it? There is little question but that in chronic mitral stenosis, where the right ventricle has hypertrophied preponderantly to maintain the much-increased pressure of the pulmonary circulation, the strain may finally become too great for it. It may begin to fail before the left ventricle does. This is not back pressure. It is just inability of the right ventricle to maintain a proper forward pressure. The lungs become more and more engorged and edematous, and the blood poorer and poorer in oxygen. This affects the whole body and, incidentally, through the coronaries the left ventricle, which eventually also begins to fail. Then general edema appears in the legs and belly, and finally

we have a picture of extreme failure of the whole heart. It is similarly conceivable that in chronic systemic hypertension (as opposed to pulmonary hypertension) the left ventricle, which carries the burden, may be overstrained and begin to fail. Edema appears, coronary circulation is interfered with, and so the vicious circle goes on with the right ventricle finally failing also because it is poorly supplied with blood. It appears to me that this explanation of asynchronous onset of ventricular failure seen in some cases is a reasonable one; it is supported by a good deal of evidence.

Whether or not it is possible to tell which coronary is thrombosed by evidence of the earlier failure of one ventricle than the other I do not know. At the present time I have under my care a man who a month or more ago had probable coronary thrombosis (evidenced by very severe prolonged pain requiring repeated doses of morphia and followed by acute pericarditis and paroxysmal auricular fibrillation and great weakening of the first sound, with an old history of repeated brief attacks of angina pectoris). He now has pulmonary edema with hemoptysis and cyanosis with little or no edema elsewhere. He may have thrombosis of his right coronary artery, or of that part of the left coronary which helps to supply the right ventricle.

TREATMENT OF CONGESTIVE FAILURE.

Now as to the treatment of heart failure of the congestive type. One of the very commonest conditions associated with this type of failure—and indeed in large part responsible for it—is auricular fibrillation or absolute arrhythmia of the pulse. When a patient with this arrhythmia is first seen, before treatment, the apical pulse rate is usually very high, averaging perhaps 150 per minute and fitting in every way the old term *delirium cordis*. In such a patient prompt and proper treatment results in such vast and striking benefit that its recognition and relief constitute one of the demonstrations of the real value of the doctor in the community. I dare say medical reputations in practice are not infrequently established by the fact that foxglove by its poisonous effect on the junction of the auricular muscle and the node of Tawara acts as a sedative to the heart. Thus only indirectly is digitalis a stimulant—by far its greatest benefit comes from its poisonous sedative action. And indeed it is worth while to recognize auricular fibrillation as an essential factor in the production of much heart failure of the congestive type. The failure results from the strain of a very rapid heart beat on a diseased or weak or exhausted myocardium. The speed is more important, I believe, than the rhythm; for once the rate is reduced circulation is restored in most cases in spite of the persistence of the irregularity. Simple as this may seem, the discovery in actual practice of improper treatment of the failing heart with auricular fibrillation makes

me feel that too much emphasis cannot be placed upon it. Usually too little digitalis is given or it is given too slowly. As one authority has said, many people have died as the result of digitalis therapy, because too little was administered. At times perhaps the actual quantity of dried leaf or tincture or infusion may have seemed sufficient, but a feeble leaf may be responsible for its inertness. However, I think it may be truthfully said that nowadays most of the digitalis preparations on the market are of good potency.

An example of the treatment of a patient with heart failure of the congestive type may interest you. It was to me a striking lesson. A woman of 55 years, seemingly on her death bed, I saw in consultation in an outlying town eighteen months ago. She was very ill, orthopneic, cyanotic and markedly edematous. She was raising bloody sputum. Her apex pulse rate was 164, absolutely irregular; her radial pulse 142, a pulse deficit therefore of 22. She had had rheumatic fever in childhood and for a year past had had palpitation, dyspnea and precordial distress, apparently somewhat relieved by small amounts of digitalis. She had become acutely worse two weeks before I saw her. Small amounts of digitalis having failed to help her, she was put on *crataegus oxyacantha*—5 drops every three hours, with 1/100 grain of strychnine and 5 drops of whiskey every half-hour. She was losing ground fast and it did not seem that she could live overnight. I found mitral stenosis and auricular fibrillation present, undoubtedly of rheumatic origin. She promised to be a favorable case for saturation with digitalis and I gave a hopeful prognosis. Her heart was obviously crying for digitalis (as shown particularly by the very rapid, irregular apex rate). We therefore began giving her digitalis leaf by mouth (and, by the way, it is very rarely necessary, even in such an emergency as this case was, to give digitalis by vein or under the skin.) Three grains (0.2 gram) were given every four hours and the order was left to continue this dosage until the apex rate fell below 80 or until the patient was toxic (as shown by nausea or a coupled pulse). All other drugs were omitted.

The next day she was already better, and when I telephoned on the second morning I found she was wonderfully improved, the apical pulse rate 68 without deficit, but still irregular, of course, the edema vanishing like snow in the spring sun and the cough stopped. She could lie flat with comfort. This miraculous effect was accomplished, I am convinced, by the reduction in the pulse rate. The heart was beating 96 times less often every minute than it had been beating two days before. Just think what this means to a tired heart—in 21 hours, 138,000 contractions cut out!! No wonder the myocardium was recovering and the circulation restored. Shortly this patient was up and around, and within the

past month I have heard from her doctor that she is in very fair health.

In connection with this case I want to emphasize the importance of recording the apex pulse rate—it should always be done when auricular fibrillation is present. Both apex and radial pulse rates should be taken simultaneously by two observers, or else in successive minutes by one observer and the difference graphically represented, if possible; the difference is the pulse deficit. The reduction or melting away of this deficit under digitalis therapy is a good guide in treatment. Yet often one finds even in unexpected places that the radial pulse is the only pulse record on the nurse's chart. I remember one striking case in which, according to the chart, which I examined first before I listened to the heart, the pulse was recorded as 90-odd, feeble and irregular. In this case the apex rate was over 170 and auricular fibrillation was present. The institution in this patient of proper treatment, with relief, actually depended on the recognition of this fact.*

I do not believe in overdoing the matter—that is, in giving too big a dose of digitalis at the outset. In the first place, one may not be absolutely certain about possible digitalis already taken, and secondly, there is no particular point in making the patient nauseated, even though in the process the heart is vastly improved. Also rarely digitalis kills. Intense nausea and vomiting and the bigeminal pulse are indications that we are close to the danger point in digitalization—probably nearly 90 per cent. of the lethal dose has been given. There is a happy medium between the small doses of bygone days and the massive doses which we have recently tried in some cases. The size of the individual must be taken into consideration, particularly in the estimation of a proper dosage. Last night I saw a woman weighing only a few pounds over 80, who, having needed digitalis badly, had been given 3 grains (0.2 gram) of the leaf (a potent preparation in this case) three times a day. After two days she became intensely nauseated and had very severe gastro-intestinal symptoms for over 24 hours, with almost constant vomiting. When I saw her she was already getting over the worst effects of the drug and looked quite well, but was still nauseated. She had rheumatic heart disease, mitral stenosis and auricular fibrillation. Her apex rate had fallen from 130 to 58, and her circulation was almost completely restored. However, a person of her weight should have received a smaller total dose and she would have been better off. This illustrates the opposite error in the administration of digitalis.

One other case I want to cite here—a woman who entered the wards of the Massachusetts General Hospital 18 years ago. She had rheumatic heart disease and auricular fibrillation.

I have looked up her record and I find that she was treated for weeks and given tincture of digitalis in insufficient quantity and only at intervals. She actually was discharged from the hospital with edema still present and a high apical pulse rate (over 110), simply because the physicians in one of the best hospitals in the country, even as recently as this, did not know how to give digitalis and did not recognize the significance of auricular fibrillation. Under a very discerning clinician outside the hospital this patient improved and lived for years.

I cannot leave the very important subject of the treatment of heart failure of the congestive type without four more brief observations. First, it is essential that, after bringing the heart of a patient with auricular fibrillation under the control of digitalis, it be maintained under that control. Again, this sounds simple, but it is everywhere neglected. After a striking recovery under digitalis the patient with auricular fibrillation, whether arteriosclerotic or rheumatic in origin, goes on his way rejoicing. All goes well for a few weeks and then the pulse slowly climbs again, and with it comes another "break" in circulation. The process is repeated time after time; much work and money are sacrificed by the victim and undoubtedly his life is shortened. The rational procedure is to maintain digitalization in a patient once after securing it if the patient really needs the drug. Of course, this applies particularly to cases with auricular fibrillation. Give daily about the amount which is excreted. This is about $1\frac{1}{2}$ grains (or 0.1 gram) of the leaf in the average adult, who has been digitalized by about 22 grains (1.5 grams) in divided doses in two or three days. By maintaining this digitalization a patient may keep at work for years and undoubtedly live longer. It does no harm, so far as anyone knows, to take digitalis daily for years. Withering, more than a hundred years ago, knew more about the proper use of digitalis than many physicians do today.

The second point concerns the administration of digitalis to patients with normal rhythm. There is experimental evidence, and clinical, too, that even when the pulse is regular and fairly slow digitalis does help in failure of the congestive type. Apparently, in addition to its toxic effect to block off stimuli from anrricles to ventricles, thereby resting the heart, there is also a direct stimulating action on the ventricular muscle. Such cases of congestive failure respond much less dramatically, however, to digitalis than do patients with auricular fibrillation.

The third point concerns the manner of giving digitalis and the use of other digitalis-like drugs in congestive failure. I have found that a good leaf in pill form by mouth is the most satisfactory therapeutic method. *There is no virtue of the tincture or of the infusion or of various costly pharmaceutical preparations of*

*Marras feels that too much emphasis should not be placed on the "pulse deficit" since the figure for the radial pulse rate is a probably fluctuation varies with the ability of the observer to count the beats at the wrist.

digitalis over the leaf itself, provided one knows that the leaf is potent. In hospital use the ordinary leaf is one-tenth to one fortieth as expensive as various trade preparations, and apparently just as effective. Other drugs of the *digitalis* series—*strophanthus*, *scuilla*, *apocynum* and *convallaria*—may be dismissed with the simple statement that for heart failure of the congestive type they are inferior—all of them—to *digitalis*. Other drugs, such as *strychnine*, *camphor*, *caffeine*, *adrenalin*, *cactus* and *crataegus*, are probably of no value as cardiac stimulants. To be sure, *caffeine* is a good respiratory and nervous stimulant and will at times break up periodic breathing such as Cheyne-Stokes, restoring a regular respiration; *adrenalin* will for the moment raise the pressure and dispel the circulatory failure of shock; and *strychnine* is a stimulant for the central nervous system; but there is little or no evidence that they affect the heart, and until there is I believe we should use such drugs only symptomatically—some of them, such as *cactus*, not at all. *Quinidine* is not a drug for the treatment of heart failure. Its sole function is to stop or prevent auricular fibrillation in selected cases.

I should like to digress here for a moment to say that I do not believe in giving a multitude of stimulants (so called) in infectious disease to "prevent the heart from failing." One of the most successful recoveries I have ever witnessed from severe exanthematic typhus was in a man who had two excellent nurses but no drugs at all.

Finally, the fourth point I want to make briefly is that besides the use of *digitalis* in congestive failure we have numerous other important measures. These are simple and widely followed, and I shall merely name them and then pass on to the final part of my talk: absolute rest in bed while there is failure; morphia if there is pain or great discomfort; veronal or bromides if sleeplessness; diuretics (*caffeine*, *diuretin*, *theocin*, *ealomet*) if there is obstinate edema not vanishing with rest in bed and *digitalis*; reduction in quantity and richness of food (sometimes the extreme limitation of the Karell diet is helpful); catharsis (but not enough to exhaust the patient) and venesection in rare cases.

DIAGNOSIS OF HEART FAILURE OF ANGINAL TYPE.

And now I shall discuss briefly the very important heart failure of the anginal type. Here the only evidence of any sort may be the heart pain. There may be no other symptoms and there may be absolutely no signs of heart disease, and yet serious myocardial disease may be present. Mackenzie has recently told the story of a man of 60-odd who came to see him some six years ago because of heart pain. Although he could find no abnormality of the heart or circulation on physical examination,

he diagnosed coronary sclerosis and warned the patient. He did not see this man again until two years later, when the patient visited him once more and said that he was worse. He admitted that he had not heeded Mackenzie's warning, but had continued an active life. When asked why, he said that at the request of friends he had visited a prominent doctor in a far country. There many specialists had examined him and tested the contents of his stomach, bowels, bladder and veins; had taken x-rays and electrocardiograms, had determined his metabolism, and had tested the effect of various diets. All the results were negative and the man was pronounced normal. Because there was no instrument to measure and record the pain it was ignored. The man died later with angina pectoris. This is an extreme case, but it does support Mackenzie's contention that as accurate as seem to be our instruments of precision, they cannot reveal everything—they are still not infrequently too crude to show the more delicate pathological changes in the human body. Sometimes we are fortunate in the study of a doubtful case of angina in finding evidence of cardiac enlargement or aortic dilatation by x-ray, the extremely significant intraventricular heart block by electrocardiogram, the weak first heart sound at the apex by stethoscope or a positive Wassermann reaction. Occasionally all these findings are absent and yet the patient may die suddenly and show at autopsy coronary sclerosis, or even, in the severer cases, coronary thrombosis, with perhaps hemorrhage into the pericardium through a tear in a weakened infarcted ventricular wall.

Age at or beyond middle life and heart pain of almost any degree are the essential factors in the diagnosis. There may or may not be cardiac enlargement or high blood pressure or murmurs or poor sounds or pulsus alternans or peripheral arteriosclerosis (such as radial sclerosis or *areus senilis*). Young people with heart pain almost always have the unimportant effort syndrome and must be differentiated. Such cases usually show also dyspnea, palpitation and nervousness. In these youths with effort syndrome sometimes the heart pain may be very severe and radiate even down the arms. As a rule, in an older person the pain is the essential symptom; it comes on as the result of exertion or excitement or the pressure of a full meal, before there is time for the development of dyspnea.

Acute or chronic abdominal disease (especially gallstones) often has to be differentiated from angina pectoris; rarely pleurisy or pericarditis may simulate it. Many attacks of "acute indigestion" in old people are simply angina pectoris.

There is rarely, if ever, edema except in the late stages, when, after years of angina, the congestive type of failure may supervene. The patient, however, rarely lives long enough to develop the congestive type of failure, but I

have seen recently a doctor, 70 years old, who began to have definite angina pectoris 12 years ago and who is now showing dyspnea and edema. As this case indicates, the condition is by no means immediately fatal, or even fatal in a few years, in all patients. It is one of the most difficult conditions in the practice of medicine to which to attach a reasonably accurate prognosis. An extremely rare combination of cardiac conditions is due to the coincidence of chronic auricular fibrillation and angina pectoris. This has been clearly recognized by Mackenzie and others. I have seen but one such case in arteriosclerotic heart disease. Paroxysmal auricular fibrillation with coronary thrombosis is not so rare.

CAUSE OF HEART FAILURE OF ANGINAL TYPE.

The cause of failure of the anginal type seems to be a malnutrition of the myocardium as the result of coronary sclerosis. Ordinary arteriosclerosis is the essential etiological factor, but syphilis plays an undoubted part in some cases. I do not believe that the condition is always the result of aortic changes (chiefly an aortitis), as suggested by Allbutt. I feel that myocardial irritation and disease as the result of temporary or permanent insufficient blood supply, because of abnormal coronary arteries, is a more important factor. The site of origin of the pain is interesting; it is often substernal, but also sometimes apical. Perhaps this variation is dependent on the site of the chief lesions—aortic or coronary. It seems probable that the angina of luetic aortitis and of coronary arteriosclerosis may be of different nature. This needs further study and analysis, and I have not had time tonight to go into the details of the variations in position and intensity of angina pectoris. It may be said, however, that the pain of true angina may be substernal or apical (more often the former), gripping or knife-like, constant or transitory. Interesting variations may occur, such as epigastric pressure, right chest ache, or numbness of the left wrist on exertion actually antedating substernal pain in the same case.

The mechanism of the production of the pain is not yet clear. It seems possible that a constriction of irritable coronaries may account for the usual attacks of angina, while for the prolonged terrible heart pain coronary thrombosis is responsible.* It is conceivable that coronary branches of various sizes may be irritable or thrombosed, giving rise to all gradations of symptoms and signs. When one says that coronary thrombosis is always fatal in minutes,

hours, days or weeks, one means that if a large enough artery is thrombosed the patient will die. I have seen at least temporary recoveries in several cases with probable coronary thrombosis.

Louis Gross of Montreal, in an excellent book on the coronary circulation (which it would benefit you all to read), has demonstrated the remarkably extensive coronary anastomoses in the human heart, particularly with advancing age, through the establishment of new vessels to supply the pericardial fat. He incidentally cites the case of an old woman who died of malignant disease. At autopsy it was found that her right coronary artery was completely thrombosed. Her myocardium was, however, almost perfectly normal as the result of anastomoses through the left coronary artery. She had in life never shown any symptoms or signs of heart trouble.

One further comment should be made on the subject of anginal failure before I end this talk with a brief discussion of its treatment. Nervous, high-strung people are probably more likely to show angina than placid individuals with the same degree of arterial damage. Their blood pressure, of the so-called essential hypertension type without nephritis, is apt to bob up and down readily at the least provocation. At such times of provocation their angina is apt to appear. I think this point must be borne in mind in prognosis—i.e., such people, if treated properly, may do fairly well for some time to come.

TREATMENT OF ANGINAL FAILURE.

Now as to treatment. Rest is essential—mental and dietetic, as well as physical; that and the relief of the pain. Nitroglycerine or amyl nitrite, the old stand-bys, are, of course, invaluable and should always be carried by the patient suffering from heart pain of the "anginal" type. Morphine should be given freely if necessary, and when much of it is necessary coronary thrombosis is probably the underlying condition. Digitalis is generally contraindicated in the anginal type of heart failure but may help a good deal if the heart pain is due to right ventricular fatigue in mitral stenosis or to the left ventricular fatigue in chronic hypertension. A light diet, particularly light in bulk, is of great importance; quantity is much more vital than quality. Five small meals a day, with the last one the lightest, are a good program. Avoidance of taxing business cares, as well as absolute omission of abruptness in physical activity must be advised. Rest will not only cause the cessation often of anginal pains but incidentally is by far the best treatment for hypertension which may or may not be associated with the angina. I have found, however, as low a blood pressure as 115 mm. systolic in marked coronary sclerosis. If syphilis is proved or likely, antilnetic treatment, begun with care, may be very beneficial.

*It is my belief that heart pain is of five types—first, the so-called true angina pectoris due to coronary arterial disease and constriction with resulting myocardial anemia and exhaustion, relieved by nitroglycerine; second, aortic pain with aortitis; third, right ventricular fatigue as in chronic mitral stenosis, the pain being apical in location and not relieved by nitroglycerine but often helped by rest and digitalis; fourth, left ventricular fatigue as in chronic systemic hypertension or aortic stenosis, helped more by digitalis and rest than by nitroglycerine; and fifth, the pain in effort syndrome probably resulting from overactive heart contractions in a person with low nervous threshold. The writer is continuing a study of an analysis of heart pain.

SUMMARY.

1. There are two general types of failing hearts—the congestive type and the anginal type.

2. All the causes of heart disease are likewise responsible for heart failure of the congestive type. The commonest causes are arteriosclerosis, rheumatic fever and allied conditions, chronic hypertension, syphilis and chronic hyperthyroidism.

3. A common and very vital factor in the immediate causation of heart failure of the congestive type is auricular fibrillation. Its recognition and proper treatment by digitalis is very important. Overexertion in normal rhythm may also cause failure.

4. Heart failure of the congestive type must be differentiated from effort syndrome, hyperthyroidism, acute infections, pulmonary disease and anemia.

5. Heart failure of the anginal type is the result of coronary sclerosis in general, with syphilis sometimes a factor. In this type auricular fibrillation is uncommon, except occasionally in paroxysms.

6. Anginal failure must be differentiated from the heart pain of mitral stenosis, of hypertension and of effort syndrome, and from acute and chronic abdominal disease.

7. Anginal failure may be present in a person with no signs of heart disease and no other symptoms.

8. Digitalis is, as a rule, not indicated in anginal failure. Nitroglycerine or amyl nitrite, morphia, but chiefly rest—physical, mental and dietetic—are the therapeutic measures to be followed.

9. The amount of cardiac reserve in both types of heart failure is often amazing, the patient sometimes living for many years after the first symptoms of heart failure have appeared.

A PRELIMINARY REPORT ON THE TREATMENT OF CARCINOMA OF THE ESOPHAGUS WITH COLLOIDAL SELENIUM.

BY ELMER B. FREEMAN, M.D., BALTIMORE.

[From the Digestive Clinic of Johns Hopkins Hospital.]

THE anatomical relations of the esophagus are such as to make the diagnosis of esophageal diseases very difficult and the treatment even more so. Also, when one considers the relations of the esophagus to the trachea and the thyroid in the neck, the left bronchus, the arch of the aorta and the heart in the chest, it becomes very apparent that the pathological conditions in these organs may, and frequently do, produce symptoms which are referred to the esophagus. It must also be borne in mind that diseased conditions quite remote from the esophagus may re-

flexly produce esophageal symptoms. Therefore, before discussing the treatment of carcinoma of the esophagus with colloidal selenium, I desire to briefly mention some of the symptoms of esophageal diseases and the special methods of study employed in the differentiation of the same.

Usually the first manifestation of esophageal disease is dysphagia, but frequently a lesion may have existed for some time before this symptom appears. This is true especially in carcinoma, while in spasmodic disease dysphagia is frequently an early symptom. When one considers that the esophagus is subject to marked mechanical irritations from coarse, irritating foods, to thermic irritation from hot and cold liquids and also to chemical irritations, it seems rather remarkable that pathological lesions do not occur more frequently; also, when it is remembered that the capacity of the normal esophagus is only 100 c.c., that the lumen is quite small, that for comfort in the swallowing act we depend very much on the elasticity of the esophagus, that, if much narrowing occurs at any point, obstructive symptoms occur promptly.

While dysphagia is the first symptom to appear in the majority of cases, it may sometimes be preceded by the sensation of fullness or discomfort or even by pain, that is dull and aching or sometimes acute and sticking in character, either in the sternal or epigastric regions. However, the slightest dysphagia or discomfort referred to the region of the esophagus should call for a very careful study, always bearing in mind that the symptoms referred to may be caused by pathological lesions quite remote from the esophagus. The dysphagia which is due to carcinoma is characterized in the beginning of the obstruction by difficulty in the swallowing of solid foods only, but after the disease progresses and the obstruction increases, even liquids are swallowed with great difficulty. Finally, complete obstruction occurs when nothing will pass through the esophagus.

On the contrary, spasmodic disease is characterized by a sudden onset and symptoms of almost complete obstruction which in a short time give way to normal swallowing, to be followed again by a return of obstructive symptoms. In these cases the obstructive symptoms are quite as pronounced with liquids as with solid foods. Associated symptoms depend mostly on the degree of dysphagia present. As long as the patient is able to take food in sufficient quantity, the condition remains quite satisfactory, but when they are no longer able to obtain sufficient nourishment, they begin to show definite signs of malnutrition and anemia and, in the carcinomatous cases, cachexia as well.

A routine physical examination gives us practically no information in regard to the esophagus, for one can palpate only a small portion of the esophagus above the thorax. This portion is so deeply located that even palpation is unsatisfactory. There is nothing to be made out

by percussion and the information gained by auscultation is unessential, but by this method we do sometimes hear a sound during the act of swallowing. The sound is best heard between the ensiform cartilage and the left costal margin. It is delayed or absent in obstructive lesions of the esophagus.

While the routine physical examination of the esophagus gives us no positive findings, the routine physical examination of the chest as a whole is very valuable in helping to rule out other pathological conditions which frequently produce symptoms, by pressure and otherwise, which are referable to the esophagus. The most important of these are thoracic aneurism, cardiac hypertrophy, enlarged bronchial glands, mediastinal growths and enlargement of the thyroid.

Due to the lack of information gained from routine examinations, it becomes necessary to resort to special methods of study. These are: sounding of the esophagus with a soft stomach tube or bougie, x-ray studies and esophagoscopic examination. All of these should be resorted to when a patient complains of dysphagia, however mild, or any abnormal sensations referred to the region of the esophagus.

The stomach tube is a valuable means of locating an obstructive lesion in the esophagus as it is soft and there is no danger of injuring the esophagus when the tube is manipulated carefully. No effort should be made to pass the tube if obstruction is met. By this method obstruction can be definitely located and some idea of the degree of obstruction may be gained.

The most valuable means of sounding the esophagus is with an olive bougie, passed over a silk thread as a guide. With a silk thread properly anchored in the small intestine, one may pass different sized bougies and in a measure work out the amount of obstruction present. One should never attempt to pass bougies unguided, for there is a great danger of making a false passage and puncturing the esophagus. This is especially true in spasmodic stenosis of the lower end of the esophagus in which there is pouching of the esophagus to the right, above the diaphragm. In these cases the unguided bougie does not enter the cardia but passes into the pouch which is frequently lower than the cardiac orifice, and the depth to which the tube passes gives one the impression that it has passed into the stomach. Any force used in the manipulation of the sound is likely to traumatize the esophagus and some cases of puncture have been reported. When the stomach tube fails to enter the stomach and a large bougie (passed over a silk thread guide) enters without difficulty, you may be sure that the obstruction is due to spasm and not to organic disease. Some difficulty in passing a silk thread into the stomach is experienced by most patients, but if the patient is instructed to swallow the first few feet very slowly, this will be overcome. In a few cases belladonna is helpful by overcoming the spasm. Not only can the degree of obstruction be meas-

ured but some information as to its character can be noted as well. In malignancy, one notes the marked resistance to the bougie and frequently the irritability and tortuosity of the canal, while in spasmodic stenosis there is a sort of elastic resistance which, with gentle pressure, gives way and permits free passage of the instrument. This difference in resistance is of the utmost importance in differentiating spasmodic from organic disease.

A careful x-ray study offers more in the way of diagnosis than any other method of examination. In most cases it locates the pathological lesion and gives us valuable information as to its extent and character. Before an x-ray examination is made, it is very necessary to empty the esophagus of its contents—otherwise, irregularities in outline and contour may be due to food and secretion retained in the esophagus. This is especially true in cicatricial stenosis and spasmodic disease. In cicatricial stenosis what is from an x-ray standpoint apparently a complete obstruction, may be found to be patulous after all of the food remnants have been removed. While evidence of obstruction with irregularity in contour is evidence of malignancy, it must also be borne in mind that malignancy, especially of the lower end of the esophagus, may occur without irregularity.

It is also perfectly well understood that chronic spasm in the lower end of the esophagus, while usually having a smooth outline, may show irregularity. Further, it must be borne in mind that spasmodic stenosis and carcinoma of the esophagus may occur together, and from an x-ray standpoint are very difficult to differentiate. While the evidence this method supplies is very valuable, it is sometimes misleading. Therefore, the x-ray interpretation must be made in the light of the clinical history, physical examination and the other special methods of study. Thus, I believe that to arrive at an accurate diagnosis, it is necessary in many cases to use all of the available methods of examination.

Most internists and many surgeons look upon esophagoscopy as a dangerous and difficult procedure and oftentimes unnecessary. We believe that there is very little danger and no difficulty in making an examination, if one has a thoroughly trained assistant, and we are convinced that this method of study is very helpful in differentiating esophageal diseases.

We have adopted a very simple procedure which has been quite successful. It is as follows: for two days previous to the examination the patient is given belladonna in dosage sufficient to cause some dryness of the throat. This, of course, lessens very much the secretion in the throat and esophagus and at the same time helps to overcome any spasm that may be associated with the pathological condition. In most cases, no further preparation is necessary, but in a few it is necessary to give $\frac{1}{4}$ gr. morphine and 1-150 gr. atropine, hypodermically, half an hour be-

fore the examination; also to make two or three local applications of ten per cent. solution of cocaine to the pharynx. After the patient is thus prepared, we proceed to empty the esophagus by using one of the newer suction apparatuses, to which is attached a small-sized stomach tube. This tube is passed down to the obstruction and then the contents aspirated. By this method we are reasonably sure that all contents have been removed. The patient is now seated on a low stool, the head held in the proper position and the esophagoscope is passed through the right pyriform sinus.

To make a careful esophagoscopy examination quickly one must have an assistant who is thoroughly familiar with the routine, as a faulty position of the head makes the introduction of the instrument impossible, and any attempt to pass the same is fraught with great danger to the patient. It is also very important to have the esophagus free from food and secretion—otherwise, secretion obstructs the view by coming into the lower end of the tube, making further examination futile. But if the patient is properly prepared and you have a thoroughly trained assistant, you will find that esophagoscopy is not difficult and will be a valuable aid to diagnosis in a group of cases that are sometimes very difficult.

In the clinic we have followed this simple routine as outlined and have found it, as far as our work is concerned, most satisfactory. We never make an esophagoscopy examination until the patient has had a routine physical and x-ray study. This procedure is followed so as to rule out, as far as possible, all pathological lesions that might be producing esophageal symptoms by pressure which, of course, contradicates any mechanical manipulation of the esophagus. With these conditions ruled out, one may proceed with safety.

While the x-ray is our most valuable means of diagnosis, still this method of study cannot replace endoscopy, by means of which one may obtain a direct view of the pathological lesion. Surely, if all patients with symptoms referred to the esophagus were seen early by the endoscopist, some pathological conditions could be diagnosed at a time when satisfactory treatment could be given.

We have seen small ulcers in the mucosa that were very difficult to diagnose endoscopically. However, the endoscopic appearance of most lesions, when once definitely established, is very characteristic. These small ulcers when situated near the cardia, I am convinced, are responsible for some cases of spasm of the lower end of the esophagus, and if these cases were subjected to an early routine endoscopic study, those that were due to ulceration could be diagnosed and treated before atony and dilatation occur. When one finds ulceration going on in the esophagus, then it must be decided whether or not the lesion is a simple ulcer or one due to tuberculosis, lues or malignant disease. Cases

of peptic ulcer have been reported, also those due to actinomycosis.

In simple ulcer one usually obtains a history of some mechanical, thermal or chemical irritation, but in a few cases there will be nothing in the history to indicate an injury to the mucosa. The simple or benign ulcer occurs most frequently at the anatomical narrowings of the esophagus which are also the most frequent location of malignant disease. Practically all of those due to traumatic injury from foreign bodies occur in the upper third of the esophagus, as ninety per cent. of the foreign bodies lodge in the region of the cricoid cartilage which is the narrowest part of the esophagus. The healing of a simple ulcer (unless very superficial) causes stenosis of the esophagus in varying degrees and the endoscopic appearance of the same depends on the degree of stenosis, the duration of the disease and the character of the irritant that has caused the injury. The most extensive injuries are caused by caustic alkalis.

If the stenosis is slight, the mucosa appears normal and there is no dilatation above the stricture. If the stenosis is of high degree, chronic inflammatory changes with or without superficial ulceration or abrasions will be noted in the wall of the esophagus above the stricture. Marked dilatation will also be noted. Cicatricial tissue in the esophagus is always paler than the normal mucosa. It may appear almost white. The appearance of the stricture depends upon the location of the scar. In some cases, a linear scar will be seen with a drawing-in of the wall of the esophagus. In other instances, the scar is seen to cross one side and cause a polypoid protrusion into the lumen. In many cases, the scar tissue almost encircles the esophagus, causing an annular stricture.

Esophagoscopy adds much to our knowledge in spasmodic disease of the esophagus. I believe that, in spasm of the upper end and early in spasm of the lower end, it offers more than any other method of study. By other methods it is difficult to make a differential diagnosis between spasmodic and organic stenosis of the upper end of the esophagus. An endoscopic study permits direct inspection of the diseased area which usually establishes the diagnosis.

In spasmodic stenosis occurring at the lower end of the esophagus, early in the disease, the endoscopic appearance may not differ from the normal. Late in the disease, the esophagus is very much dilated, the walls are atonic, the mucosal folds obliterated, the respiratory movements absent, the mucous membrane grayish in color, showing evidence of chronic inflammation with, in many cases, superficial ulceration.

The esophagoscopy appearance of cancer varies greatly according to the stage in which the examination is made and whether the growth is primarily in the esophagus or secondary to malignant disease in the adjacent viscera.

Jackson states that he has every reason to believe that the very early stage of esophageal

cancer occurs as a leukoplakia in at least a few instances, but that the opportunities for early esophagoscopy in cancer are so rare that there is no means of determining the frequency of such an onset. He states that, in these cases, the mucosa appears as though it has been burned with silver nitrate. In other instances, an early manifestation of malignancy is sub-mucosal infiltration which gives a sensation of increased resistance in the esophageal wall. This is always the early finding when the carcinoma involves the gullet from without; in these cases the mucous membrane remains apparently normal for a long time.

As the disease progresses, other local changes are noted, as: irregularity in the lumen, obliteration of the normal mucosal creases and folds and the absence of inspiratory and expiratory movements.

Later on, definite polypoid protrusions into the lumen, with consequent marked irregularity in the outline of the growth, are noted. At this stage, there is definite congestion of the mucous membrane and, in many cases, a beginning ulcerative degeneration of the growth. After ulceration has occurred, the appearance of the ulcer is not entirely dependent upon the carcinoma, but is partly caused by secondary infection with pyogenic organisms. A malignant ulcer is usually irregular in outline, the surrounding mucosa much inflamed, the surface granular and slightly elevated. It bleeds easily when sponged. Definite areas of necrosis may be found in the more fungoid and cauliflower types of neoplasms. Late in the disease, one is impressed by the marked rigidity of the diseased area, the tortuosity of the lumen, the ease with which bleeding occurs, the absence of scar tissue and the small amount of dilatation above the growth.

Endoscopically, a malignant ulcer may be confused with one due to lues or tuberculosis. In luetic ulceration, the following characteristics usually are seen: The edge of the ulcer is elevated and surrounded by markedly inflamed mucosa; the surface is frequently depressed; granulation tissue is not excessive and there is very little bleeding when the ulcer is sponged, although the surrounding mucous membrane may seem very much inflamed. The tuberculous ulcer is superficial, rather anemic in appearance; the granulation tissue is not excessive; the edges are not elevated; the surrounding mucous membrane is not congested and the surface does not bleed easily when sponged.

As yet thoracic surgery has done but little for cancer of the esophagus. Gastrostomy as a palliative measure prevents starvation, but a radical operation for cancer of the esophagus has been attempted only by a comparatively few surgeons and even in their hands it has not been very successful. However, with the recent advances being made in this branch of surgery, we believe that in the near future surgery will offer much to these patients.

Radium has offered more than any other method of treatment and, in the recent literature, some reported cures are to be found. Also much good has been done in a palliative way. However, with radium the problem of giving a dose large enough to penetrate the tumor mass sufficiently to destroy the cancerous cells in the outer zones without injuring normal tissue cells is still unsettled, and if the cells in the outer zones do not receive a lethal dose, they may be stimulated to greater activity, with the result that a slow-growing malignant tumor may be made to grow very rapidly.

If the attack against malignancy could be made through the blood stream, then it would be possible to bring the therapeutic agent into contact with all of the malignant cells.

Wassermann, working with mouse cancer, in 1911 and 1912, set out to solve the following problem: is it possible to influence therapeutically by intravenous injection, without injury to other cells of the organism, a rapidly growing tumor? Can one find a chemical compound which, after intravenous injection, will automatically leave the blood stream, attach itself to the tumor cells and destroy them?

The first experiments here to be reported were based upon the work of Gosio (*Zeitschrift für Hygiene*), Band 51, 1905) with sodium tellurium and sodium selenium, which give a red or black precipitate with living cells (due to reduction of salt to metallic state), but no precipitate with dead cells.

A. V. Wassermann readily proved that local injections (most easily with tellurium) would destroy carcinoma. However, this treatment is useless for tumor of inaccessible or unknown location, and intravenous injections are needed.

At first intravenous injections (tail veins of mice) were without effect, and it was thought advisable to provide for increased diffusibility by the addition of other chemical groups. For this purpose were tried several hundred compounds with the fluorescein dyes (eosin, erythrosin, cyanosin) combined with selenium and tellurium. These compounds were most unstable and most difficult to prepare. Finally, a combination of selenium and eosin was found to be very active. This substance is soluble in water and can be injected without fatal results in amounts up to 2.5 mgm. for a normal mouse of the average size (15 gms.). Following the injections the whole mouse becomes red.

Using this dose, in mice with neoplasms, these results were obtained: doses I and II, no visible changes; doses III and IV, the tumor softened to a fluctuating cyst and began to be resorbed; after dose V and VI the tumor gave the sensation of an empty sac and rapidly disappeared.

With too rapid resorption the animals died from toxæmia. After complete cure, no recurrences developed, but with incomplete treatment, early recurrences were the rule.

This treatment was uniformly efficacious with several strains of carcinoma (3 from Ehrlich, 1 from Schilling, and 2 spontaneous strains) and was even more effective with a strain of sarcoma from Ehrlich's laboratory. Of these tumors, none disappeared without treatment. Autopsies showed a red stained mass, or detritus, or fluid with pale or colorless tissue about it.

One can easily prove by putting small pieces of fresh tissue in the thermostat in selenium solution that the selenium is reduced by the living tissue and precipitated in the metallic state (fine black granules) particularly near the nucleus where the need for oxygen is greatest, but not reduced by the dead tissue. These results can be readily repeated with local injections into carcinoma in living animals. With intravenous injections of eosin-selenium, the action is mainly upon the cell-nuclei and there is very little leucocytic infiltration. The spleen of these animals frequently shows a deposit of this pigment, of even small masses of tumor detritus which have been carried there by the blood stream. This detritus is sometimes found also in the liver and lungs of animals which are responding to repeated injections. In a few cases nephritis occurred with necrosis of the epithelium.

The authors give warning that human tumors may not be susceptible to this drug, but state that mouse carcinoma can be cured by eosin-selenium in intravenous injection.

The poisonous nature of the preparation of eosin-selenium used rendered its direct application to human beings too hazardous. This difficulty was surmounted by the production of a colloidal suspension of selenium, the toxicity of which has been shown by animal experimentation to be negligible. Thus the way was opened to the therapeutic application of the remedy.

E. Watson Williams, in the *British Journal of Surgery*, 1920-21, makes the following statement; in many inoperable cases, the results obtained with selenium compare favorably with any known method of attacking a malignant growth by the way of the blood stream and are apparently equal to those of radiotherapy. All malignant tissue is affected, however inaccessible. As purely palliative treatment, the drying of ulcers and abolition of pain is a marked advantage.

He reported eighteen cases treated, with apparent arrest of the malignant process in six. Diminution in the size of the tumor could be verified in five more. The condition of the remaining ones was not conclusive. That is, apparent arrest and relief of symptoms followed treatment in one out of three cases and, in the whole series, the majority experienced considerable benefit.

From the possibilities of Wassermann's experimental work and the recent clinical report of good results obtained by Williams, we decided to carry out some observations with selenium in

carcinoma of the esophagus. We selected this group of cases because we believe them to be the most hopeless of all.

Colloidal selenium may be administered subcutaneously, intramuscularly or intravenously. When given subcutaneously, there is quite a little local reaction and the results have not been satisfactory. The intra-muscular method gives results similar to the intravenous route, though less promptly.

In the cases under observation, we are using the intravenous method. The general reaction is not alarming if one observes carefully the effect of the initial dose. The injection may be given in the office or the out-patient department of a hospital and the patient allowed to go home half an hour later. Repeated injections may be given into the same vein. If, for any reason, some of the solution gets into the subcutaneous tissue while giving the injection, the local reaction is negligible. The initial dose we have been giving is 3 c.c. This is followed on the second day by 5 c.c. If no reaction follows, this dose is given three times a week throughout the treatment. In this sized dosage there has been no cause for the least anxiety. So far, we have not given more than twenty treatments.

Following the intravenous injections in most cases there is, in a short time, a slight anaphylactic shock as evidenced by frequent pulse, weakness, nausea and occasionally a chill. There may be also increased difficulty in swallowing for a short time. This is thought by Williams to be due to an increased blood supply to the growth, and this to be secondary to a local deposit of selenium following the initial reaction which usually occurs within the first hour. There is in six to eight hours a general reaction, which continues for ten to twelve hours. During this time there is some rise in temperature, increased pulse rate, headache and general depression. Williams thinks this is due to absorption into the circulation of material destroyed by the drug. The initial shock or the general reaction which occurs during the first twenty-four hours usually only occurs after the first few injections or when the drug is given in very large and frequent doses.

In the cases under observation, there seems to be some improvement in symptoms. There has been relief from pain, dysphagia has become less marked, loss of weight has at least been temporarily controlled and, in one case, a very marked gain in weight has been noted. There has been marked psychic improvement which may be due entirely to the fact that some definite line of treatment is being carried out. However, I believe the improvement is partly due to the relief from pain which usually occurs after the first few injections. Also, the dysphagia is lessened and the patient is able to take more nourishment.

While the treatments are being carried out, careful esophagoscopy observations are made

from time to time. The appearance of the presenting part of the growth is noted—first, to determine whether or not there is evidence of increased blood supply to the part; second, if any sloughing or necrosis has occurred; third, if the esophagus has become more flexible or more patulous. We try to make these observations twenty-four hours after the selenium has been given. These cases are also studied by x-ray methods to determine, if possible, any change in the size and contour of the growth and also to note whether or not obstructive signs are becoming less marked.

As an adjunct to the treatment, dilatation is carried on by bougies being passed over a silk thread as a guide. This method of passing bougies prevents injury to the esophagus, which is quite likely to occur when they are passed blindly. The passing of bougies blindly is mentioned only to be condemned.

Our group of cases is too small to draw definite conclusions from, but we do feel justified in making the statement that in a certain group of cases this method of treatment may be useful.

It would seem from the literature that so far very little has been done with selenium in the treatment of carcinoma, and especially in carcinoma of the esophagus. If further observations were made in a large number of cases, conclusions might be worked out which would serve as a working basis in the future. We hope to follow out the work in a sufficient number of cases to try to formulate logical conclusions, not claiming at the present time anything more than a palliative treatment to be used in a certain group of cases which, up to the present time, have been, if not entirely hopeless, almost so.

We do not know whether or not the results obtained from this method of treatment will compare favorably with those where radium is used, but it must be borne in mind that for certain reasons, radium is not available to all patients suffering with carcinoma. If further observations on the use of selenium will establish its therapeutic value, then we have a method of treatment which is available for all cases.

The surgical treatment is to be given preference over all other methods when the technical difficulties of the same have been overcome, but up to the present time these difficulties have been so great that only a few surgeons have perfected a technique which justifies them in attempting radical operations for carcinoma of the esophagus. I do believe, however, with an earlier diagnosis, which will be made possible when the profession as a whole recognizes the importance of an early, careful study of all patients with symptoms referable to the esophagus, that some of these patients will be referred to the surgeon in time for operative treatment. This is especially true, I believe, of carcinoma of the lower end of the esophagus. I have seen one such case in the past year. In this patient the tumor was small, situated just above the

diaphragm, with apparently very little infiltration of the wall of the esophagus.

I am well aware of the fact that in many cases symptoms are overlooked by the patient or do not occur until the disease is well advanced, and little can be hoped for in this group. But, on the other hand, many times the presenting symptom of dysphagia or pain is overlooked by the physician or attributed to hysteria or some other nervous manifestation until the disease is well established and the most important time for study and treatment is passed.

PREGNANCY WITHOUT DEMONSTRABLE CERVIX OR CERVICAL CANAL, WITH REPORT OF CASE.

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THE case reported below is unique from both an anatomical and obstetrical standpoint, and has some very interesting and instructive features.

Mrs. H., age 21. Para 1. Housewife.

Past History.—Always well except usual children's diseases. Periods of menstruation had been regular and normal since puberty, except severe pain at this time. Married about one year, and this her first pregnancy. Had severe pain at coitus from time of marriage.

P. I.—First seen when three months pregnant and physical examination showed a slight, nervous type of girl, but in fairly good health. Obstetrical examination showed external pelvimetry normal; vaginal outlet a little small, and patient very sensitive to examination; vaginal mucous membrane slightly congested and slight serous discharge in vagina; body of uterus easily palpable and softened and enlarged to about size of three months' pregnancy and in good position; careful palpation failed to show any uterine cervix or anything resembling it, or any cervical opening into the uterus; rest of pelvis seemed normal. The writer at this first examination felt a little bewildered to find a pregnant uterus and no apparent opening into the uterus. Nothing was said to patient, but she was asked to report again in one week. At this second examination, very minute search, both digital and speculum, failed to show any cervical tissue or any opening into the uterus anywhere along the vaginal walls, or any fold, behind which an opening might be hidden. After this examination anatomical findings, explained to both husband and mother of patient, and in matter of prognosis, the writer stated that since she had menstruated and had become pregnant, some uterine opening must be present and that when labor started, the softening of the lower segment and the pressure of the amniotic

sac, would probably dilate the lower uterine segment and, incidentally, the uterine opening. Patient had a disagreeable pre-natal period, with constant albuminuria and mild toxemic symptoms, which was only kept under control by constant supervision. Patient went into labor at 2 P. M., with mild intermittent first stage pains and entered hospital; four hours later pains and uterine contractions had become regular every 3 min. and about 2 min. duration. At this time pains were of expulsive type, and membranes ruptured spontaneously with discharge of amniotic fluid; 2 hours later nurse reported that perineum showed signs of distention with each pain, and observation confirmed this. Patient prepared for vaginal delivery and rectal examinations made, which examination showed cephalic presentation, with head in pelvis, but no cervical opening palpable. Vaginal examination now made, and this confirmed rectal findings, with the addition that it showed uterine wall about $\frac{1}{4}$ inch in thickness entirely covering presenting part, no suggestion of uterine opening anywhere. Now came the question as to what to do? First thought was to incise uterine tissue over head, which was at pelvic spines, similar to vaginal Cesarean, and deliver with forceps; this was rejected because of danger of opening into abdominal cavity or cutting large blood-vessels which might be in an anomalous position, which is not infrequent with anatomical deviations from normal, and also came the question of mechanical difficulties with a small primiparous patient. After consideration it was decided that an abdominal Cesarean would be best. Lest my failure to find an opening into the uterus be the result of some personal fault, I asked my assistant to make a vaginal examination; this was done under careful aseptic conditions, and he, also, failed to find any cervix or cervical opening.

Patient now prepared for abdominal operation. Low incision made and peritoneal flaps dissected off lower uterine segment and held out of way with retractors; uterus now opened and foetus delivered; placenta and membranes delivered and exploration of uterus from within failed to show any suggestion of opening into vagina; uterus closed with two layers of sutures and peritoneal flaps approximated over uterine wound. Palpation of uterus through general abdominal cavity showed it to be normal and descend into pelvis with normal contour, and broad ligaments joined uterus in normal position; tubes and ovaries both normal. Parietal peritoneum closed and abdominal wall closed in layers in usual way; patient returned to bed in good condition and good after recovery.

The writer wondered at this time what the next few days would show; what would become of the normal amount of clotted blood which remains in the uterus after any delivery; how could she drain the normal amount of lochia; would the small opening which must be present suffice as far as drainage was concerned, or

would even this small opening become clogged with a clot of blood or in some other way become occluded; would the usual influx of bacteria from vagina find its way through into the uterus and infect-retained clots? In a word, it was impossible to foretell what would happen; I just trusted in the Lord.

For 15 hours following delivery operation no sign of vaginal discharge or staining appeared, and then came a thin, serous fluid which gradually became blood-stained; this sero-sanguinous discharge kept up intermittently until patient left the hospital. About 24 hours after operation patient jumped a temperature of 102.5 and pulse of 120, but examination showed nothing definite to account for it. This temperature and pulse subsided in about 48 hours, and patient made a gradual recovery. Up to the 15th day patient ran an intermittent evening temperature, which was due partly to small necrosis at lower end of incision, with sero-purulent discharge, and to a slight pyelonephritis. Patient discharged from hospital on the 22nd day in fair condition; uterus well involuted and nothing in adnexa; wound well healed except small granulating area at lower end; general strength of patient had not returned fully, but she was up and about. The baby was placed on a formula before leaving the hospital, and at discharge was doing well.

This case proves that pregnancy can take place through a very small uterine opening, in this case so small as to be invisible; it proves that nature can take care of the involution of the uterus without the usual large amount of lochia which is discharged externally with a normal cervical canal; it proves the value of early examination in all cases, for in this way abnormalities can be discovered and the condition made known to the family, who cannot thus criticize the attendant later if difficulties arise.

VEIN PUNCTURE AND INTRAVENOUS MEDICATION IN INFANTS.

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DURING the past decade vein puncture and intravenous medication have become so important that the physician unskilled in technique is greatly handicapped by his inability to properly perform these minor operations. About twelve or fifteen years ago it was not at all uncommon for many otherwise good men to be compelled to cut down upon some vein with a knife prior to an intravenous treatment, or even to obtain blood for a Wassermann test. Gradually, however, the technique has been so improved that such a radical procedure is most unusual, excluding, of course, some cases of transfusion where extreme anemia and a large needle at times render surgical incision still necessary. In the great majority of adults the median cephalic or basilic veins, either right or

left, even if not seen, can be palpated and punctured by the experienced operator. And in those cases where, on account of extreme adiposity or small veins, these vessels cannot be entered, it is almost always possible to find a suitable one at the wrist or on the dorsum of the hand. Occasionally the veins of the ankle or foot may be punctured where no others appear. The writer, in looking back over past years, working in a hospital of over five hundred beds, where he has had supervision of routine Wassermanns on all adults and of the intravenous administration of arsphenamine and other intravenous medication by the thousand, finds that the last time skin incision was found necessary was over eight years ago.

If, however, this procedure is usually relatively easy in the adult, the reverse is equally true of the infant. Under such circumstances the arm veins are small and are often neither visible nor palpable. Examination of blood, either for culture or for Wassermann, is equally important to that in the adult, while intravenous medication often makes all the difference between future health and a handicapped body or even life itself. Some other route must be found. Following work abroad and early work in this country, the posterior angle of the anterior fontanelle was used as a guide to enter the superior longitudinal sinus. Here is a vessel relatively fixed, closely situated to the surface and of sufficient size to be readily found. The technique will not be here detailed as it has often been described, only pausing to emphasize the great need of absolute asepsis. From that time to the present we have followed this route in about four hundred infants when obtaining blood for the Wassermann test.

There have been very few cases where we were unsuccessful in our endeavors, and in no instance has any injury, temporary or permanent, been noted, following the puncture. Following this simple puncture, we began the cautious introductions of arsphenamine and neoarsphenamine by the same route. This was done in some sixty instances equally without any demonstrable injury of any kind.

In the performance of the operation, one is working in close proximity to very important and vital parts, where any minor slip in technique may be most serious. An unexpected movement of the infant's head might result in a tear of the vessel wall, with resultant intracranial hemorrhage. Any error in asepsis might be followed by localized or general infection. And in medication, any small perforation of the opposite wall of the vessel might result in the escape of arsphenamine, or whatever is being used, into the subdural space, with most disastrous results. With us, therefore, the method was, of necessity, possible only to those particularly skilled in its application, and not practical for general adoption.

Even under such conditions, we began each operation with trepidation and finished it with

distinct relief when no unfavorable indication appeared.

In this uncertainty we eagerly looked for suggestions, and when the anterior and external jugular veins were brought to our attention we were only too glad to try them.

The results of the trial have been in every way so satisfactory that we now only very exceptionally have recourse to the sinus route. The technique is simple: The child is placed upon the table or bed, upon its back. A roll of cloth, often a roll of surgical cotton, or something similar, is so placed under the shoulders as to allow the head to be well directed backward. The head is then turned to one side or the other, dependent upon which jugular is selected. The operator stands at the head of the patient. This position usually exposes the vein, which can be seen just beneath the skin. Slight pressure, by the nurse, overlying the vessel just above the clavicle, renders the procedure more simple, while the fact that the infant at times cries, on account of the unusual position, often still further facilitates the ease of access.

The thumb of the left hand steadies the vessel by direct downward gentle pressure as the needle (gauge No. 20-No. 22), with the bevel edge upward, is inserted just beyond the thumb. The desired amount of blood having been obtained, the needle is withdrawn, and light pressure immediately arrests any bleeding. A small gauze and adhesive dressing is then applied. This process is usually simple in the extreme.

It is applicable during infancy and early childhood, whereas the sinus route is only available while the fontanelle remains open.

It does not have the possibilities of danger possessed by the sinus route, especially in intravenous medication.

From the psychological standpoint, a small pin-prick in the neck, often below the child's clothing, is much less fear-instilling to the parents than a puncture in the scalp or, as they often report it, "into the brain."

From all standpoints, therefore, when the usual vessels for puncture are unavailable or too small, in the infant and young child, the jugular vein offers a safe route and, when available, should be preferred to that of the sinus, *via* the anterior fontanelle.

A CASE OF SECONDARY PURPURA HEMORRHAGICA WITH REMARKABLE BLOOD CHANGES.

BY OLIVER H. STANSFIELD, M.D., WORCESTER, MASS.

This report is concerned with a case of streptococcal bacteremia, with secondary purpura hemorrhagica, remarkable for the apparent total disappearance of polymorphonuclear leukocytes from the blood.

The patient, a Jewish male of 23 years, was

admitted to Memorial Hospital, complaining of bleeding from the mouth and causeless bruises of the skin. The illness had begun three weeks before with an uneasiness in the stomach, without vomiting or diarrhoea. Four days later, jaundice had appeared, and had persisted up to the time of admission. Three days before admission, causeless bruises were noted, as well as bleeding from the mouth. On the day before admission bloody urine was voided. No other symptoms were present; particularly, there was no pain. The patient had been quite well for two years prior to the onset. Two years before, he had had a mild sore throat, and eight years before, a large boil on the nape of his neck. There was no other past illness; the family history was negative.

On examination, the jaundice, swollen lips with blood coming from the mouth and a "bruise" under the left eye were noted. There was no dyspnoea or cyanosis, or undue pallor. The man was lucid. The jaundice affected the whole body; many minute petechiae were found in all parts, with several larger hemorrhagic areas, one of which, on the right thigh, had a central infected area. Development and nutrition were good. No muscular, bony or articular lesions were found. The ears were dry, with good hearing. The sclerae were yellow, the eyes moved normally, the pupils were equal, 5 mm. wide, and reacted normally. The nose was dry. The lips were swollen, but not hemorrhagic. The teeth were in poor condition, with a false tooth inserted in one alveolus, and much caries. The gums were swollen and ecchymotic, with a slow ooze of blood from many points, but without sign of clotting. The tongue was brown coated. The fauces were ecchymotic. On the neck was the scar of an abscess. The thyroid was normal to palpation. The thorax was well formed and moved normally with breathing. The lungs were clear. The heart was not enlarged, had a regular rhythm, rapid (90 to 100) rate, and clear valvular sounds. No venous pulsations were noted. The abdomen was rather scaphoid, without tenderness, rigidity or mass to be made out. The liver was enlarged neither downwards nor upwards. The spleen and kidneys were not palpable. No enlarged lymph nodes were found. Tendon reflexes and sensory perception were normal. The temperature was 101, the respiratory rate 20.

Blood examination showed 90 per cent. hemoglobin by Tallquist's scale, 4,216,000 erythrocytes and 1700 leukocytes, with no polymorphonuclear cells or platelets to be found. The only leukocytes present were small lymphocytes. The red cells seemed strictly normal. Blood oozed, for several hours, from the puncture made for this examination.

The urine and feces contained blood, the urine being otherwise negative.

The next morning, the patient received by indirect transfusion 800 c.c. of whole fresh blood.

After this, all bleeding ceased, the petechiae disappeared and the larger purpuric spots began to do so. When a tooth—the false one—was removed two days later, a clot formed but did not retract.

Other examinations showed that a gingivitis which developed, was probably due to Vincent's organisms; the teeth, after special examination, were thought to be much affected by apical root abscesses. The nose and throat were not infected. Blood culture revealed an hemolytic streptococci bacteremia.

The further course of the disease resulted in death early on the seventh day after admission, hematuria reappearing on the sixth day. On this day, too, an embolus affected the right calf.

The white blood cell counts during this later course were 3800 on the fifth day and 3100 on the sixth. A short time before death, a count of 1850 was obtained. All counts were made from preparations from both of two pipettes.

In all, twelve stained preparations were searched but in none was a single polynuclear cell found, nor a platelet. In fact, all the leukocytes seen were small lymphocytes. No debris suggesting the possible presence of broken down cells was seen, and on looking over the counting chamber under higher powers of the microscope, only mononuclear cells were seen.

Probably related to absence of leukocytes was the appearance of the transfusion wound. This became white and necrotic by the third day, and on removal of the sutures, about 5 c.c. of transparent colorless fluid escaped.

On the sixth day, 4 c.c. of boiled milk was injected subcutaneously, but no effect, local or general, was obtained. (The blood count on this day was made some five hours after the injection).

Unfortunately, no post-mortem examination of any kind was allowed; but, in spite of this lack, the extreme degree of the blood changes make the case noteworthy.

New England Hospital Association.

ANNUAL MEETING MAY 17 AND 18, 1922,
AT BOSTON MEDICAL LIBRARY.

(Concluded from page 699)

PUBLICITY FOR HOSPITALS.

BY DR. GEORGE H. STONE, EASTERN MAINE GENERAL HOSPITAL, BANGOR, ME.

I HAVE been greatly disappointed, in my brief experience as an hospital executive in a small city, to learn that oftentimes the community does not manifest the interest it should in the affairs of its local hospital. I have found that the greater number of people have come to regard the hospital as a place of last resort to go to if they are sick, but do not realize the impor-

tant part it plays in the life of the community. If the street railway, telephone service, or other public utilities should shut down for even a brief period, a great clamor would be immediately aroused, demanding that steps be taken at once towards the prompt resumption of service. On the other hand, were the hospital compelled, through lack of funds, to close even a part of its plant, such action would receive only passing notice, and would be the subject, perhaps, of criticism, that such curtailment of service was due to extravagance in administration, and that such a step should have been taken long before; little realizing the severe blow which such a loss of hospital service would mean to the health of the community.

This apathy, or lack of interest, on the part of the general public has been the subject of much discussion in our board meetings. How should we overcome this indifference of the community towards the hospital and its needs? The one answer which seemed to offer the best solution was, that a campaign of education of the public through the local press should be undertaken, or, in other words—publicity.

A recent periodical in its editorial columns, deals with "Publicity" as follows:

"Nothing can be got in this country except through publicity continued over a long period. The tremendous and constantly growing advertising business in this country is a recognition of this fact. No matter how excellent an article, it has got to be advertised in order to be sold in large quantities. No matter how excellent a cause, it has got to have widespread publicity in order to be 'sold' to the people of the country."

It has been noticed many times in recent campaigns for funds for hospitals or other institutions, that such appeals have been preceded by vigorous educational campaigns extending over a period of weeks, and often ceasing abruptly after the drive has stopped. To my mind we should not wait until the need is apparent and then engage in a hurried campaign of education, but we should keep our hospital in the public eye on all occasions with a series of articles in the local papers, telling about what the hospital is doing to advance the cause of modern hospital service.

The community, upon which the very existence of the hospital often depends, is entitled to know, and should be told, everything about the institution. How is the hospital dollar spent? What are its needs? Why is a new laundry, power plant or nurses' home necessary? How much real charity work is the hospital doing? Are the trustees living up to their trusts? These are all questions in which the public is vitally interested, and may be properly asked by the community which the hospital serves.

How shall such a publicity campaign be conducted? First, the coöperation of the press must be obtained. This is not difficult, because most

papers are glad to publish anything that will be of benefit to the community in the development of local enterprises.

If nothing in the way of publicity has ever been done, we must start at the very beginning, possibly with articles dealing with the founding of the hospital, and following up with the story of its growth and expansion. The territory from which the hospital draws its patients, and the particular need for hospital service in this territory, should be set forth. Articles dealing with the value of the laboratories, the x-ray, and the training school for nurses; the important places these occupy in relation to the care of the patient and diagnosis of disease, should receive attention. All these may be used as leading articles appearing at least once a month. Between the publication of these stories, news items, such as the purchase of new equipment, the staff meetings, and general hospital activities should be given out from time to time, always keeping the institution before the public.

It is rather difficult, at least for myself, to write such articles so as to give them the appearance of news; so I have found that the best procedure is to ask for an experienced news writer to come to the hospital, and give him the facts, and let him write the stories, because newspaper men know how to present the details in the best way so that they will make interesting reading for the public.

It is needless to say that everything which is published must be absolutely correct, so as not to give wrong impressions. If the hospital is carrying a deficit, say so, and tell why. A deficit may be made to represent the hospital's greatest asset, if presented to the public in the proper way.

In our publicity work we should not lose sight of the fact that newspapers are always on the lookout for anything sensational. They want to know all about the latest accident cases, transfusions, and details relating to surgical operations. In this respect, we must remember the confidential relation that exists between the hospital and its patients, and we should be very careful not to give out any information which would in any way destroy this relationship, without first obtaining the permission of the patient or his responsible friend. Names of physicians should also be withheld in such instances, in order to avoid undue publicity or violating the code of professional ethics.

National Hospital Day, perhaps, affords us one of our best means of publicity. On this occasion the hospital may hold "open house," and invite the public to come and see for themselves the actual work it is doing. Many people took advantage of this opportunity in our city on May 12th, and I am sure the hospital made many friends on this occasion, because they had no idea of what modern hospital service means to-day. They developed a different viewpoint altogether of what hospitals are doing along the lines of education of physicians, nurses, and the

public, and I am sure the hospital will receive stronger support, if the need for financial assistance is ever presented.

To sum up: There is often a general lack of interest in some communities towards hospitals and their needs. The best way to overcome this, is through intelligent campaigns of publicity and education. These campaigns should be started, not merely for the purpose of appeals for funds, but should be kept up indefinitely; because the hospital owes this information to the public to which the institution looks for its support. Such campaigns are bound to result in a better understanding generally of the public towards hospitals, and, in the end, the hospital will be assured of better public support.

DR. HOWLAND: This is a very timely paper, and very interestingly presented. Hospitals have hidden their light under a bushel. They should let the community know what they are doing, taking due care that there shall be nothing sensational in the news.

MISS HASKELL: I should like to tell of our publicity work with reference to furnishing our new home. We had thought of appealing for funds in a regular campaign, but the city was in the midst of a textile strike, so it seemed undesirable to follow that method. We have a promising young minister there, and I told him a few things that I should like to have put before the public as to the needs of the hospital. This young minister wrote two columns for our local papers, one daily and one weekly, regarding the needs of the hospital. The response was immediate and gratifying. Friends of the hospital—and we have a good many—came, not to give what they wanted to, but to ask what we wanted them to give. And the result is that the entire children's department has been furnished by donation, and the living rooms and sitting rooms and dining rooms in the nurses' home have been furnished by donation; and we are constantly having small amounts, \$10, \$25, or \$30, to use for whatever purposes the superintendent wishes. We had in the past avoided publicity; but we have found that publicity is very much needed in our hospitals. People are interested in hospitals, and in everything that goes on in them, sometimes to the detriment of the hospital. If we could only put aside the things that should not go into the press, and have only the things that we most want put into the press, it would be a perfect Godsend for the hospitals to be in the public eye as much as possible.

MISS EASTMAN, Eye and Ear Infirmary: I think about eight or ten little books were published, each one bringing in some little story about the Eye and Ear Infirmary, and asking for a donation. Last year that yielded between nine and ten thousand dollars. This year we followed that up by sending a note to contributors, reading something like this, "Last year you contributed—so much,—and we request that you do

the same this year." That has been going on about a month, and we are getting very good results. We are also sending out letters to people who did not give last year but who had contributed preceding that time. The Publicity Committee are writing a personal letter.

Q. You employed someone to write the little books; didn't you?

A. Yes; some of the stories were written by trained novelists, for which they were paid.

DR. BROWN: In our town the editor of our leading daily is very good about publishing anything we want published, and about writing up what should be written; though he is a little reticent about publishing anything as to the trustees not living up to their duties.

DR. SEXTON: With the inauguration of National Hospital Day a year ago, we published a little pamphlet, a four-page leaflet, giving in detail the organization of our hospital, the type of work we were doing, the per capita cost, the number of operations we did daily, or for the year, the number of patients that we had treated since the establishment of the hospital, free and otherwise, the daily operative cost of the entire institution, with other items I do not recall now. We placed a little receiptable for these leaflets at the front of the desk, and put a placard above it, saying "Facts which you should know about the Hartford Hospital. Take one." We have changed the nature of the information given on those leaflets about once in six months. About 200 of these leaflets are taken daily by visitors to the institution. Just how much good it does, I don't really know. It certainly sends into the community a certain amount of information that would not reach the people otherwise. We have never solicited contributions through that channel. As a matter of fact, we have only once gone to the public for funds. We asked two years ago, for half a million dollars, which they gave within a week. We shall not ask for another contribution for two or three years; then we expect to go back to the public, and ask for a similar amount. In the meantime, we feel that it is not wise to ask for contributions for any purpose whatever. These leaflets and other information we have been able to distribute has been purely along educational lines. We think keeping the public informed as to what we are doing will, when the time comes, be worth more to the hospital than it costs. We did not make a great effort at the last "Hospital Day," not as great as in previous years, when we had a window in one of the large department stores, and gave a lot of demonstrations on giving treatments, handling patients, nursing problems, etc. Our superintendent of nurses thought—and I think she was right—that that attracts curious people only, largely children and people who are morbidly curious. I don't think a demonstration in a store window ever attracts the class of people you want to bring to your institution. So we

omitted that this year. We advertised for a few days, in the local papers, that we would give a radio concert in our ward on Hospital Day, for the benefit of patients and their guests, and we extended the visiting hours an hour longer than usual, in order to give this concert; and we had a house full of people. Of course, the radio-telephone is very popular now, and a great many people have never heard a broadcasted concert given. I think it was curiosity to hear the concert, more than to learn about the hospital, that brought the crowd. Anyway, we had a lot of people who would not have come to the institution otherwise.

DR. HOWLAND: About what is the expense of a radiophone suitable for hospital use?

DR. SEXTON: I should not advise, knowing what I do, any hospital to purchase an outfit. I have just read, to my dismay, this morning, that an invention has recently been made that would relegate all apparatus we have recently purchased, and make it of no use whatever. So I advise waiting until the industry is more stabilized. The cost of an apparatus such as ours, where we have a central receiving station, and wires extending from this station to all our public wards, the same as the telephone, each having its own horn reproducing the concert, the same as a graphophone does,—the cost, with eight extensions, with the present type of apparatus, is about \$1000. Incidentally, the *Hartford Times* presented it to us. They took up a collection for five hospitals in and about Hartford. Two declined the outfit; so the entire donation which the *Hartford Times* collected will go to the three institutions. I think it creates a good deal of interest in a local paper when it takes up a contribution for hospitals. It was a purely voluntary effort on the part of the newspaper people. I think that radio apparatus will be very much cheaper in a little while. There are a number of inventions not yet placed before the public that will reduce the cost of it considerably, because of patents which will be superseded, or which will expire shortly.

During the afternoon we had put on our own concert. The amount of commercial business transacted during the day, the additional noises, etc., which naturally are picked up, same as the concerts are, made any attempts in the afternoon unsatisfactory. The novelty of the thing of course, added a good deal to it, and we felt that it was worth while. The graphophone gives a better piece of music than you can get from a broadcasting outfit, except late at night, too late to give to your patients. The novelty of the thing is more than the actual enjoyment received from the concert.

DR. HERSEY: We employ a woman who is a newspaper writer to handle the newspaper situation. The different newspapers used to call us up three or four times a day to obtain news, and when we were unable to give them sufficient

excitement to make headlines, they became peeved; so we found the best way was to employ this woman. She tries to get hold of the accidents and things of interest to newspapers. If we have any particular news we think would be of interest to the public, she puts that in the newspapers for us in a manner satisfactory to the papers.

In regard to the "hospital window," the hospitals about New Haven made a combined effort to have hospital windows during Hospital Day. We ran a demonstration on nursing technique, etc. This year I wanted to see what the situation was, and I watched the people who stood before the windows. I think the group interested this year were of a higher grade than those who had been interested in other years. I was quite strongly impressed with the fact that most of the people outside the windows, watching the demonstration, were young girls, who would make good nurses.

DR. PARKINS, Peter Bent Brigham Hospital: I think that Dr. Stone's paper is very apropos. Hospitals are passive institutions by tradition. No one can justify the investment of millions of dollars and the use of intelligent personalities without some definite and active program being carried out. The scope of the work is varied and it requires able minds to advance the standards in a steady manner. The service rendered to a community cannot be greater than it is willing to receive. Here is where advertising has its main function in teaching the community and individuals. Leaders in Hospital administration should have something to offer and be active in placing their services before both the professional and lay public. The idea of considering a hospital simply as a boarding house for sick people is medieval and cannot be tolerated in this day. A well planned advertising campaign will be a real benefaction to the community and the hospital. It is obvious that hospitals cannot take over all the methods and devices used in the commercial world, but many of the ideas can be used. Advertising must be considered in its broadest meaning in hospital work. A well built and well managed nurses' training school is a very real advertisement; courteous service, a capable dietary department and other departments well run are all sources of material for telling of an institution's worth. Another very interesting feature is the hospital as a health center. Why should other similar organizations be created alongside of a hospital? I believe that it is along the line of preventive medicine that the hospital has its greatest field in the future. Dr. Stone has given us some concrete suggestions, and I hope that many will act on them.

DR. HOWLAND: Mr. Borden, can you tell us how to get our needs before the rich people, so that they will remember us in their wills? Mr. Borden writes wills for people.

MR. BORDEN: Of course people making their wills are mostly older people who have grown up with certain pet charities, so that the older institutions are the ones most frequently remembered in wills. If you are looking for testators, the best thing to do is to catch the young people. In that connection, it is interesting to see how things work together in a hospital proposition. The construction of the nurses' home, and the use of the nurses' home, and back of it all is this idea that the training school for nurses has entirely changed; it is rapidly getting to be on a par with the girls' boarding school and the girls' college, and the product of the nurses' training school is a product that is coming more closely in touch with the social activities of the world. In other words, a necessary part of the education of the competent nurse today is education to meet people socially, people of intelligence, and to be able to talk with them in a manner to which they are accustomed. So the nurses' home should be a place of cultivation, as well as a place to learn primarily the arts of nursing; and, with that in view, we should provide social entertainment for the nurses in the nurses' home, by endeavoring to get them to provide social entertainments themselves. One way to do it is this: We get some of the young ladies connected with the women's board of the hospital to advise and assist the nurses in the ways of entertaining by teas, plays, and concerts, minstrel shows, and other things such as young girls in college are quite accustomed to. These young women who come into the training school to assist the nurses immediately get in touch with the hospitals, and by and by some of them are married and begin family life, with a knowledge of the hospital that they never could have got in any other way than by contact. So when you start a good thing, it reaches out in all directions. Of course, a great many of the hospitals in Boston advertise constantly the needs of the institution, and there is a reminder there, when a person is about to make a will, that the needs of the hospital are great, and that they are worthy objects of bequest. I think that is a very good plan, because people making wills can be thus given suggestions as to the proper distribution of their estate. I think more publicity in this direction would be desirable. I think a greater knowledge of the way the hospitals work would be desirable. It might be well for people to know what to anticipate when they went to a hospital. It seems to me that I should like to know what kind of accommodations I was to have, what I should carry with me, and that it would be worth while for someone who could write well to get out a little standard pamphlet about the needs of a guest at a hospital. It should be well written, and could be changed to meet the needs of different hospitals. Trust companies and commercial institutions do things like that. The general advantage of the hospital, and what might be ex-

pected could be written, and then specific things, rooms available, etc., incorporated by various hospitals. I think it might make an interesting publication. People are interested in patients, and would like actual information about what happens to the patient when he gets there. People pick up pamphlets and read them; and if you start in with a personal question, you could get them to read the whole proposition. It does seem to me that some bright chap or lady could start in and write up the general proposition of what should be in hospitals as a basis for publicity.

MAN: In view of the increasing number of estates now being handled by trust companies, it seems to me that the trust offices should be made fully acquainted with the work of hospitals that might be of value to us.

One source of publicity with us has been the giving of hospital talks before local organizations, such as women's clubs. One prominent citizen said that he had the impression that the hospital was a private banking institution; he said, "Hereafter, you can have any of my money when you need it."

WOMAN: We had an interesting campaign in Providence. The trustees decided that they must have a new building. At first they planned for a hospital of 100-bed capacity; then they decided to make it a hospital of 250-bed capacity, and to put it up to the people of Providence. They made a very careful statement, giving only facts, which they submitted to the people. They started their campaign, and the first published article was brought out in February. We had the coöperation of a very reliable paper, the *Providence Journal*. The work was undertaken by teams of 800 men and women. The object was to get one million dollars for building, equipment, and endowment. At the end of seven days they had \$1,225,000.

MISS METCALF, Lewiston Hospital: It may be of interest to hear what a small hospital has done. We have a board of directors. A little over a year ago, the oldest director of the hospital, and his wife, said they would give a nurses' home, provided the present directors would decrease the debt of the hospital at least \$60,000. We had a drive by the ordinary methods, and two of our directors gave up quite a number of weeks visiting in three counties, in Androscoggin, Franklin, and Oxford Counties. They visited prominent men in these counties and solicited funds, and in a very short time the sum of \$60,000 was promised; and our nurses' home was given by this director; also a hospital dispensary. Since then these men have continued the publicity work. They not only present the need of money, but give facts regarding the work of the hospital, and what it might do in the community; and the newspapers have contributed space for advertising the hospital and its needs. This has been produc-

tive of good; we have had more applicants for the training school, and an increasing interest in everything pertaining to the hospital.

DR. HOWLAND: Dr. Sexton said he had taken a leaf out of Mr. Statler's code. Mr. Statler's attitude is that his guest is always right. Dr. Sexton tries to make it seem that the guest at his hospital is always right; tries to avoid controversy. He says that if you send out a patient satisfied, that will be a means of getting the right kind of publicity. If he goes out dissatisfied over some small matter, such as an item on his bill, he is likely to give the hospital publicity, but of a very undesirable kind. Mr. Statler says "Our guests are always right."

QUESTION-BOX.

Signed Statements.

Q. Is it good form, when a patient is admitted to the hospital, to ask for a signed statement as to that person's responsibility for bills contracted? If so, what form can be used to best advantage? Is it good form for a hospital to sue a person for his bill? Is it customary to charge interest on a bill of long standing?

DR. SEXTON: We require someone responsible—it does not matter who it is—to sign a guaranty of payment of the bill of every patient admitted to our institution. They don't object to it. They come to us for service which they expect to pay for, and there has been, during my time as administrator, no one who objected to pledging himself to pay just debts. In the matter of collections, I don't believe we have had to sue anyone; but we do turn our accounts over, after a definite time, to a collecting agency. We have three form-letters which we send to them, after sending two statements of the account to which they have made no response. Then we send the first letter, which is very mild and as polite as we know how to write, calling attention to the indebtedness. If we don't hear in ten days, we send a letter a little bit stronger. If they pay no attention to that, in ten days, we send a third letter, saying, "We wrote you, on such a date, calling your attention to the balance due at the hospital," and stating that unless immediate payment is made, the account will be placed in the hands of our attorney for collection. Notwithstanding the unemployment situation which has existed in the past year, we have not charged off any accounts which we would otherwise not have charged off,—no bad accounts. Our outstanding indebtedness last year was less than 5 per cent.

DR. HOWLAND: Haven't you a law in Connecticut that helps you in that matter?

DR. SEXTON: Yes; but we have never had to use it. We got it through the legislature at the last session. This law applies to people who leave hospital bills unpaid in the same way that

the law applies to hotel bills; imposing a fine of \$50 or thirty days in jail on anyone who hasn't satisfactorily adjusted their hospital account. It doesn't say they must pay it, but "satisfactorily adjust" it. It works.

DR. HOWLAND: We have a little contract form that we asked to have signed by the private patients, or those unable to pay regular rates, or those whose bills are to be paid by a relative, or someone who is to be responsible. We keep one copy and give the duplicate to the person who is responsible. This is a reminder that they understood what they contracted for. From private patients we intend to collect their bills, if possible. Our attorney thinks it is very desirable to put this contract in their hand and keep a duplicate, so that they cannot deny the agreement or say that they misunderstood. We formerly put down on the admission blank the amount the patient agreed to pay; now they sign their name. I should be glad to send a copy of our form of contract to anyone who would like it.

Hospital Records.

Q. What is your custom in regard to allowing patients' hospital records to be inspected and used, first, for court cases, and, second, for industrial accident hearings?

DR. HOWLAND: The practice is definitely defined by law in this state. We have no choice in the matter.

MR. BORDEN: You need not produce records in court unless you get a summons. Generally it doesn't pay to refuse, because you have to do it sooner or later, and may as well do it in the first place.

DR. RICHARDSON: The insurance companies and various people wanted our records. I tried to get a ruling from the city solicitor, but he didn't give any. I inspect each record, and if there is nothing in the record confidential or detrimental to the patient, we let them look it over. If there is something we think it is not best to show them, we give them such facts as we think proper.

DR. FAXON: At the Massachusetts General we have developed quite a routine method of handling this thing. The principle is that the plaintiff and the defendant are both entitled to a copy of the records. The plaintiff, if represented by a lawyer, must give that lawyer an authorization, and in that case we give them a copy of the record. A clerk is employed who does nothing else but copy these records. She is instructed, and, of course, at first you have to watch what she puts down very carefully. But after she becomes accustomed to what to put in and what to leave out, she makes very good copies, without much difficulty. Before they leave the hospital, all these records are in-

spected by someone connected with the administration. The charges vary from fifty cents for a certificate to \$3 for a copy. If the record is of great length, an additional charge is made. The reason we have taken this stand is because the records may be summoned into court, and we thought we might as well let them have the copy as to compel them to summons the hospital to bring the records into court, and cause the hospital the trouble of sending someone to carry the record. In addition, we many times have to send a man to court. He is not a doctor, but simply a representative of the administration. He reads the record; not being a doctor, he volunteers no opinion on what is in the record, except to tell how it was obtained. Industrial accident cases are handled just the same, because in this state the Industrial Accident Board has the powers of the court in summoning witnesses.

DR. HOWLAND: This afternoon the programme is to visit hospitals in Boston. I am sorry I can't tell you about some particular new thing in every hospital that you might want to see.

The South Department of the City Hospital has new isolation wards, with cubicles and modern sterilizing and utility rooms. The Children's Hospital, on Longwood Avenue, has a new ward. The Massachusetts General private ward, the Phillips House, is still in the very forefront of modern hospital construction. The Hospital for Women and Children, on Dimock Street, has a very large obstetrical service and a very interesting obstetrical ward. The Free Hospital for Women, in Brookline, has a new wing. The superintendents have not been asked to provide special entertainments; but they have all expressed themselves as very glad to welcome you if you care to visit them.

Report of the Committee on Nominations called for by the Chairman:

DR. RICHARDSON: The committee has had the usual difficulty in arriving at a decision; there are so many men and women well qualified for the positions. They submit the following:

For President: Dr. Louis A. Sexton of Hartford.

For Vice-President: Miss Mary M. Riddle of Newton.

For Secretary-Treasurer: Dr. N. W. Faxon, Boston.

Trustee for four years: Dr. Joseph B. Howland.

Trustees for two years, to fill the vacancy created if Dr. Sexton is elected: Miss Rachel G. Meltealf, Lewiston.

On motion made and seconded, it was *Voted*, that the Secretary be instructed to cast one vote for the election of the officers nominated.

The ballot being cast by the Secretary, the officers nominated were declared duly elected.

DR. SEXTON: I am deeply grateful for the

honor given me; but I feel very keenly that there are a good many older members of the Association who could do a good deal more for it than I. I shall expect to call on any or all of you for assistance, which I hope will be forthcoming.

(The retiring President was asked by the newly elected President to keep the chair for the remainder of the meeting.)

There being no further business, motion for adjournment was declared to be in order.

On motion moved and seconded, it was *Voted* to adjourn.

Adjourned at one o'clock p.m.

Medical Progress.

REPORT ON PSYCHIATRY.

BY HENRY R. STEDMAN, M.D., BOSTON.

DEMENTIA IN YOUNG CHILDREN.

ZAPPERT¹ reports two cases of infantile dementia from his own practice, and also gives condensed histories of five further cases communicated to him by T. Heller, who was the first to call particular attention to this form of dementia (1908). All seven cases are so similar that there can be no doubt about their belonging to the same group. After a period of normal or approximately normal development, the typical symptoms of the condition begin to appear in the third or fourth year. At first only peculiar inaccuracies of pronunciation are noted, but later speech becomes quite indistinct. In every case great unwillingness to speak developed, until finally spontaneous speech ceased entirely; also the understanding for spoken language was gradually lost. Restlessness, an excited condition, and sometimes hallucinations were common manifestations. Fear states were noted in some instances. The dementia continued to increase and ended in a few months in complete idiocy. The facial expression did not become idiotic, but remained, as a rule, rather intelligent. There were no bodily symptoms connected with the nervous system—no motor disturbances. The condition finally became stationary without impairment of the physical health. One of the children was the son of a physician. The diagnosis at first had been hysteria, but the course of this and other cases confirmed the progressive dementia. All were boys but one in this series.

NEUROPATHIC MANIFESTATIONS IN CHILDREN.

Eight cases showing marked evidences of the presence of the so-called neuropathic diathesis in infants and children are presented by Shannon.² In four of these cases, definite evidence of the exudative diathesis was also present, while in another case there was a positive history of such a condition in the past. The re-

maining three cases gave no evidence suggestive of the presence of an exudative diathesis. All the patients showed the presence of protein sensitization by cutaneous tests. All showed definite relief from the nervous symptoms on the institution of specific therapy directed at the proteins to which they were sensitive. In all but one of the eight cases the proteins concerned were those of foods contained in the dietaries of the patients. In one case animal emanations of pollen proteins might have played a part. In one case the nervous symptoms could be relieved or brought on by the exclusion from or the addition to the diet of the food to which the patient was sensitive. Evidence is presented showing that anaphylaxis is a sound, theoretic basis for the explanation of many of the symptoms of the so-called neuropathic diathesis.

NERVOUS AND MENTAL DISTURBANCES IN HEART DISEASE.

Jaquet³ mentions, among others, headache, inability to sleep; the patient cannot find any comfortable place in bed, or his cold feet keep him awake even with a hot water bottle. A brief tendency to dizziness and syncope is common, even in the young. A sudden transient inability to move hands or feet has also been observed, but it lasts only a few minutes. Lack of attention, a change in character, and actual psychoses are not rare. He warns that the physician may be responsible for them, by his heedless use of the terms "heart failure," "calcification of the arteries," etc., thus frightening the patient. Pleuropericarditis in one woman had left cicatricial adhesions which were mistaken for grave organic disease, and the patient was warned to beware of all efforts or heart failure might result. She stayed in bed for nine months, not lifting a finger, before she could be convinced that she was not in grave danger. Then she got up and resumed an active life. Nervous dread and depression interfere with the action of heart tonics. Often, in heart disease, psychotherapy is the main thing. It frequently happens that a stay in a sanatorium is of great benefit. The patient loses his dread and restlessness when he knows that a physician is at hand day and night. This frequently tranquilizes permanently. In conclusion Jaquet warns against medicinal intoxication; he witnessed in two cases the development of a psychosis after the therapeutic administration of caffeine.

TREATMENT OF HYSTERIA.

Speaking of the treatment of hysteria, Head⁴ says: If possible, the patient should be removed from the usual surroundings, and new influences brought to bear. An attempt should be made to switch the dissociated part into the continuity of the patient's mental life. Every form of persuasion should be exercised to convince the patient that he is able to carry out the action he is convinced to be impossible. Never bully him

or accuse him of dishonesty. No one is a greater failure than the medical officer who wishes all hysterics could be shot at dawn. On the other hand, the firm diplomatist with subtle and demonstrable reasons why the patient can stand, walk, or feel, often produces miraculous cures. But it must never be forgotten that in a large number of cases, especially in civil life, removal of hysterical symptoms is only a prelude to the discovery of an anxiety neurosis. The causes for the suppressed emotion must be investigated, or the patient may be left in an even worse condition than that in which he was found. Do not harm the patient by antitherapeutic suggestion; carefully prune conversation, and do not think the diagnosis aloud. Avoid such words as "neuritis." Some diagnoses, such as "floating kidney," are more deadly than the disease. Avoid thinking in terms of surgery when dealing with functional neuroses. At the same time the most brilliant conversation is useless with an hysterical.

MENTAL INFLUENCE ON GASTRIC SECRETION.

Heyer's⁵ research during hypnosis, a fine stomach tube in place, with continuous aspiration, demonstrated a remarkable variability in the acid content of the gastric juice in the same person at different times after both test meals and suggestion. The suggestion of pain, danger, recalling of war happenings, arrested at once the gastric secretion in nearly all the subjects. The suggestion of agreeable events, a spring day, winning money in a lottery, etc., never had the opposite effect, but had the same arresting influence, only it occurred more slowly. His research thus has demonstrated the law that any diversion of the mind, painful or pleasurable, from the act of eating, checks the secretion of gastric juice. The effect is more pronounced, the stronger the mental impression. In one patient with pure mania the gastric secretion was found constantly normal. In all the subjects, the stomach secretion increased at once in large amounts when a nutrient enema was injected. The distention of the rectum evidently promoted secretion in the stomach by reflex action, as all psychic factors were excluded, and the reaction occurred too promptly for the nourishment to have made its influence felt. The findings in this line suggest the necessity for giving nutrient enemata a drop at a time, with gastric ulcer, to avert this reflex action from distention of the rectum. His tables show, for instance, a drop from 10 or 20 or 18 to 0.5, 2 and 1 in the amount of gastric juice secreted under the suggestion of bombing, a railroad accident or the like. The drop was from 10 to 3 under suggestion of good news. Atropin given before or with the sham feeding checked secretion, but it did not seem to influence it when not administered until the secretion was well under way.

THE ENDOSECRETORY GLANDS IN PSYCHIC AFFECTIONS.

In 25 patients with mental disease Fauser and Heddaeus⁶ examined the thyroid, the suprarenals, the hypophysis, the genital glands, and in some instances also the thymus and the epiphysis. Seven patients belonged to the dementia praecox class; 12 were epileptics; 5 were imbeciles, and there was one case of senile dementia. In the thyroids of such patients goitrous degeneration was frequent; other changes were occasioned by concomitant affections (tuberculosis). The suprarenals showed, in part, senile changes and, in part, findings due to tuberculosis. In the hypophysis, there was found in various psychoses, a predominance of the basophiles over the eosinophiles in the anterior lobe, which is exactly opposed to the findings in healthy persons of corresponding age, and may possibly be regarded as a sort of retardation of function of the hypophysis. The genital glands, the thymus and the epiphysis showed no typical changes. It may be stated that only in exophthalmic goiter could infantilism of the endocrine glands be demonstrated histologically—not in psychoses such as they investigated. More extensive investigations may bring to light characteristic changes.

SCHIZOPHRENOID CEREBRAL SYPHILIS.

Urechia and Rusdea⁷ cite authorities and their own experience to confirm the finding that the symptoms of dementia praecox may be observed in the course of syphilitic disease of the brain and general paresis. These schizophrenoid symptoms may be transient or durable. In one case, from onset to death, the clinical picture was that of dementia praecox through the entire six-year course. Cases are known up to twenty years' duration, and lumbar puncture or necropsy first cleared up the diagnosis. In some of the cases both the Wassermann reaction and the spinal fluid findings became negative during a stationary phase. Catatonia is evidently the result of a certain injury of a certain part of the brain, but the morbid agent causing the injury need not always be the same.

GENERAL PARESIS IN THE AGED.

The process of involution already installed in the elderly imprints special features on progressive paralysis when it does not develop till late in life. The infection of 21 of 84 such cases in Jauregg's⁸ service at Vienna was of from twelve to over forty years' standing. In 27 per cent. of the total cases the mental derangement was of the persecution type. This paranoid form of general paresis seems to be peculiar to the aged. The optic illusions often took the form of animals, although there was no alcoholic basis. The hallucinations occurred mostly nights, and were often an occupational delirium. In short, the senile general paresis bears the impress of senile psychoses in general.

NONSPECIFIC TREATMENT OF GENERAL PARESIS.

Fischer⁹ reiterates his assertions that with sodium nucleinate we can count on an actual cure of a certain proportion of our cases of general paresis. His thirteen years of experience have shown 7.5, 16, and 56 per cent. cured without relapse in three series of forty, eighteen and sixteen patients with general paresis. Only 50, 40, and 8 per cent. in the same groups failed to show any benefit. He has found specific treatment as for syphilis entirely ineffectual. The prospects are better the younger the patient, and the shorter the duration of the paresis. Of all the means to induce the therapeutic leukoeytosis, nuclein has given the best results to date. He declares in conclusion that a course of leukoeytosis treatment should be given as a routine measure in prophylaxis of paresis to every syphilitic on concluding the specific treatment for the syphilis. He compares the results of treatment of paresis with tuberculin or by inducing malaria, or other means to stimulate leukoeytosis. He advises repeating the course annually. In twelve cases all under 40 in which he gave over 10 gm. of nuclein, a cure was realized in 58 per cent. He gives the minute details for the treatment with which he has been successful. He begins with 2.5 c.c. of a 10 per cent. solution of sodium nucleinate injected subcutaneously in the arm or between the scapulae. After two or three days, 3 or 4 c.c. are injected in the other arm. Increasing the dose in this way, he reaches 10 c.c., and then the series is begun anew from the first. Three or four such series constitute the course. Fischer is professor of dermatology at Prague.

TREATMENT OF PSEUDOTABETICS.

It is often simple enough, says Kouindjy,¹⁰ to mistake a pseudotabetic for a genuine case of tabes, for the symptomatology in both instances is frequently very similar. Occasionally, this similarity extends even to a confusion in the findings of morbid anatomy. In spite of this, pseudotabes is a pathological entity easily distinguished from true tabes on account of its etiology, and, especially, of its course. Pseudotabetics are characterized by their tendency to complete cure, by tenderness on pressure of muscles, and by the absence of the Argyll Robertson pupil. Further, they can be distinguished by the different topographic distribution of anesthetics, which here diminish from the distal end toward the root of a limb, whereas in tabes they always show a radicular distribution. The treatment of election of pseudotabes must comprise treatment of the etiologic cause and also symptomatic treatment. Physiotherapeutic treatment occupies a predominant place in the second instance. Re-education must be considered the most rational measure, being calculated to combat at the same time both the motor disturbances of progression and the psychic state of pseudotabetics.

MENTAL HYGIENE AND THE INDUSTRIAL WORKER.

Campbell¹¹ believes the mental health of the industrial worker to depend upon the complicated interplay of the individual personality, the specific conditions of the industrial task, the economic factor, the domestic and general social environment. When dealing with the disorders of the individual worker, and of groups of workers, it is not always possible to isolate single symptoms, and supply specific remedies, medical or social; and one must be prepared to make a very detailed analysis; and the remedies may be of slow evolution. So far there is not available enough well-studied material for useful constructive suggestions to be made; to gather such material is a task of immediate importance. The development of an enlightened public opinion on these topics would be a most important contribution to the mental health of the community, and to social and economic stability.

The attention paid during war time to the mental health and morale of those engaged in the business of destruction is no less necessary during peace time for purposes of construction; mental health and good morale are as important in peace as in war, and to muddle along in peace may be as disastrous as to do so in war.

MENTAL HYGIENE AND MEDICAL AND GENERAL EDUCATION.

Buzzard,¹² in a presidential address, urges that the growth of mental hygiene be promoted (1) by no longer misnaming mental disorders as nervous. It is perhaps time to be courageous and call institutions hospitals or clinics for minor mental disorders. (2) By getting rid of the confusion between ethical and medical principles as they affect health. (3) By teaching elementary principles of psychopathology, and psychotherapy to students in order that the general practitioner may take a prominent part in maintaining the mental health of individuals; these subjects, being more important than much that the student is called upon to know, should be introduced into the syllabus for examinations and questions set upon them. (4) By obtaining general recognition for the multiplicity of factors concerned in producing mental as well as other disorders. (5) By giving due prominence to fatigue as a factor in psychopathology, to rest in psychotherapy. (6) By encouraging thinking as an important preventive measure.

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Book Reviews.

Advanced Suggestion (Neuroinduction). By HAYDN BROWN, L.R.C.P., etc., Edin.; Fellow of the Royal Society of Medicine. Second Edition. 387 pages. New York: William Wood & Co. 1922.

In the fast increasing literature of psychotherapy, a number of special methods have been advocated as practically indispensable in the treatment of functional nervous disease, borderline states, etc., and extravagant claims advanced. In fact, this field, more than any other branch of medicine, seems to offer writers unusual temptations for departing from an impartial, conservative, not to say scientific, attitude of mind. This book is an extreme example of this tendency.

Neuroinduction—a term which the author makes use of in preference to the main title, "Advanced Suggestion"—he lauds as "the first technique to contain a recognizable relaxation as apart from natural sleep and hypnotism," maintaining that "such a form of relaxation was never scientifically known or expressed before." In "neuroinducting," he explains, the physician demonstrates both to the sensations and understanding of the patient (who, mentally and physically relaxed, is in a recumbent position, with the eyes closed) such clear explanations, reasonings, etc., as he deems necessary. The author also makes much use of "manipulations," the nature of which he does not disclose. Under the induction theory the term psychoanalysis is abandoned, as "one that can bring only unhappy recollections," and the plainer and simpler one of "thought analysis" adopted. The author disagrees with all the definitions of former writers of the nature of the unconscious, and has no use for Freud's or Jung's systems, but he outstrips even the psychoanalysts in his employment of new or unfamiliar technical terms.

The consideration of functional nervous and early mental disorders, in the description of which there is much that is sound and interesting, forms the bulk of the volume; but apart from these the list of diseases pronounced to be curable by induction is most surprising in the number and variety of conditions included. The author, he tells us, deals successfully, by this means, with asthma, hay fever, and seasickness; also drug habituation, diabetes, duodenal ulcer, Graves' disease, colitis, myxedema, phthisis, cardiac disease, and warts. Certain cases of eczema and other skin diseases, delusions and hallucinations and even dementia precox have yielded to induction at his hands. Still more astonishing is the author's reported success with certain surgical cases. He also "humbly enters his claim to be the first medical man who has succeeded in obtaining definite re-

sults of a curative nature in cases of organic disease and new growths, by means of psychotherapy." Even cancer has not wholly escaped his skill. The text is interspersed with a large number of more or less fully reported cases. His many and invariably successful results are remarkably rapid, and he alludes to certain speedy cures as "magical." He predicts a "glorious time ahead" for those who will practice neuroinduction, asserting that "as a means of restoring will power it cannot be equalled in efficacy by any other known agency."

Medical men have little patience with panaceas and are therefore likely to receive these inordinate claims with scant favor. Moreover, the induction method, based as it is on a questionable psychology and a none too original technique, will hardly be generally accepted as a dependable guide in psychotherapy.

Diseases of the Skin. By HENRY H. HAZEN.
Second edition: C. V. Mosby Co., St. Louis.
1922. Price \$7.50.

This book differs markedly from most others on this subject in that it is written consistently from the general practitioner's point of view. He has simplified and condensed the chapters on anatomy and physiology, etiology, pathology, etc.; his chapters on treatment and hygiene are decidedly to the point. The arrangement of the succeeding chapters differs from that of most other works on the subject, being less scientific but much more accessible to the practitioner who wishes to identify as well as learn about cases that puzzle him; the first group takes up diseases due to external causes of all sorts; next, systemic infections, as syphilis and the exanthemata; the toxæmias: diseases due to blood vessel, lymphatic, and nerve changes; diseases due to foods, infantile eczema and pellagra; eczema; then a series of chapters each covering those conditions of unknown origin having the same general type of lesion, as papular and nodular, bullous and vesicular, etc.

The book is simple, very readable, takes up a sufficient length and in satisfactory detail the skin diseases more frequently met with. The illustrations are excellent throughout, the subjects well posed; the very large number of subjects chosen from the colored race makes a valuable addition to the worth of the book, as many dermatoses certainly differ considerably in the light and dark skins. A very few excellently chosen photomicrographs of striking lesions are included, leaving to the more voluminous and complete works the great mass of details useful to those who wish to become advanced in this field. The book has been largely rewritten for the second edition and some new material added.

Ten Post-Graduate Lectures, Delivered Before the Fellowship of Medicine at the House of The Royal Society of Medicine. 1919-1920. With a preface by THE RT. HON. SIR CLIFFORD ALLBUTT, P.C., K.C.B., M.D., F.R.S. New York: William Wood and Co. 1922.

This altogether admirable book contains the text of ten lectures; printed clearly and cleanly upon two hundred pages of good flat paper; a good index is added; illustrations have been omitted.

In the recent Harvard-Oxford debate, the intelligent observer could easily note the very considerable differences which exist between the methods of public spoken discussion in two of the leading universities of the world, representing two of the great present divisions of the English-speaking world. These ten lectures at present under discussion, show equally distinctly some of the differences which exist between Medical books and writings of the same two great groups. And although the verdict in the debate was in favor of America, a goodly minority in Symphony Hall that night believed that in the matter of really worth while oral discussion, and in its method, the young Englishmen were far ahead of the young Americans—so, too, many thoughtful American readers of English Medical writings admire very greatly the style and literary craftsmanship which they find so often in the English papers, and which is so often and so unfortunately lacking in American monographs of parallel aim. It is lacking very largely because we are too much in a hurry, and because too few of us enjoy any considerable degree of Medical leisure. Every one who reads the *Boston Medical and Surgical Journal* should also read these ten lectures. Every one of them is interesting and most of them are extremely valuable.

Atlas of Syphilis. By PROF. LEO v. ZUMBUSCH of Munich. William Wood and Co., New York. 1922. Price \$15.00.

The atlas contains 49 illustrations of cutaneous syphilis taken directly from nature by color photography, ranging from the primary lesion, of various types and in various situations, through the secondary, transitional, and late manifestations; also five of congenital syphilis. Ten pathological specimens, including four photomicrographs showing treponemata, are included in the book. There is a brief paragraph of explanatory text with each. Rare types of lesions are not included, as the atlas is intended primarily for the student and general practitioner. The posing and lighting show skill and patience on the part of the author. The colors, unfortunately, have not come out true, yellow being too prominent in practically all the plates; otherwise the technical

execution is excellent. It should be useful for teaching and for those to whom syphilitic cases do not often present themselves.

Current Literature Department.

ABSTRACTORS.

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A CONTRIBUTION TO THE QUESTION OF THE LEUCOCYTE FORMULA IN MALARIA.

SWAN, JOHN M. (*American Journal of Tropical Medicine*, July, 1922) writes that differential counts were made of CS blood smears from 55 cases of malaria including all three varieties of malaria. The result showed that an increase of the large mononuclear cells is not constant in malaria either in the acute stage of the disease or in carriers. If, however, the presence of malaria is suspected and an increase of large mononuclear leucocytes is found "it seems reasonable to assume that the patient has or has had malaria." [G. G. S.]

THE RELATION BETWEEN SYPHILIS AND YAWS AS OBSERVED IN AMERICAN SAMOA.

PARHAM, J. C. (*American Journal of Tropical Medicine*, July, 1922) writes: "Evidence is adduced against the duality of yaws and syphilis and the view advanced that yaws is 'stone age syphilis.'" [G. G. S.]

SHOULD GANGOSA BE REMOVED FROM THE NOMENCLATURE OF TROPICAL MEDICINE?

KERR, W. M. (*American Journal of Tropical Medicine*, July, 1922). The writer believes that the lesions to which the term gangosa has been applied are in reality late manifestations of syphilis or of yaws and that consequently the term gangosa should be eliminated. [G. G. S.]

THE IMMEDIATE INFLUENCE OF ALCOHOL INGESTION UPON DIABETIC GLYCOSURIA AND BLOOD SUGAR.

FULLER, L. S. (*Jour. Metabolic Research*, 1, 609, May, 1922). found that alcohol reduced both hyperglycemia and glycosuria in most of his mild or moderate diabetics, but usually not in those of great severity. The effect was most marked when alcohol was substituted for the caloric equivalent of fat, but was also frequently manifest when alcohol was added to the previous diet. Table III is really quite striking. The objection may, however, be made that the patient was retaining water in the body, and probably sugar at the same time, which might be only temporary storage. [H. G.]

THE INFLUENCE OF THE THYROID IN DIABETES.

AULEN, F. M. (*J. Metabolic Research*, 1, 619, May, 1922) concluded from the literature and from new observations on dogs that thyroid excess may aggra-

vate diabetes, but does not act as a cause; that thyroid deficiency may diminish glycosuria and hyperglycemia but probably only as a result of injury or cachexia; and finally that the general trend of the evidence has steadily reduced the supposed rôle of the thyroid in diabetes, especially as regards antagonism between pancreas and thyroid. [H. G.]

CLINICAL OBSERVATIONS CONCERNING PROGRESSIVENESS OF DIABETES.

SHERRILL, J. W. (*J. Metabolic Research*, 1, 667, May, 1922), reported in detail five cases of the youthful severe type, concluding that even these were opposed to the belief in a mysterious, spontaneous progressiveness. [H. G.]

THE CAUSATION OF EPIDEMIC DROPSY.

ACTON (*Ind. Med. Gazette*, Sept., 1922) makes a preliminary report on his studies of epidemic dropsy in India. This disease is characterized by localized oedemas, chiefly affecting the lower extremities, and not associated with signs of peripheral neuritis, thus differentiating it from beriberi. It is closely associated with an exclusive or almost exclusive rice diet. Both the quantity and the quality of the rice eaten are important factors. The disease is most common where the consumption of rice is greatest. Its peculiar distribution among middle-class Bengali Hindus indicates that the poison is formed during the seasoning process. These people prefer well-seasoned rice because it is sweeter and more easily digested. Seasoning consists in the splitting up, by bacterial action, of the vegetable proteins and carbohydrates into the more soluble proteoses, peptones and sugars. Seasoning is more apt to occur in polished rice, where the fruit is injured during the milling and, during the monsoon months, owing to temperature and humidity. When rice is hoarded in hot, damp godowns, decomposition progresses further with the formation of polypeptides, amino-acids and finally toxic amines, which cause the dropsy. The prevention of this disease consists, therefore, in the elimination of seasoned rice from the diet. [L. D. C.]

DIAGNOSIS OF ACUTE GASTRIC AND INTESTINAL DISEASE.

SCHNITZLER (*Wien. klin. Woch.*, June 22-29, 1922) discusses at length the entire field of diagnosis of acute inflammatory and mechanical diseases of the abdomen, involving the alimentary tract. He also reviews the principal indications for surgical procedure. The article is an admirable brief summary of diagnosis and treatment of the acute abdomen. [R. M. G.]

TREATMENT OF FEBRILE ABORTION.

MARK (*Wien. klin. Woch.*, July 6, 1922) summarizes his treatment of febrile abortion in private practice as follows:

1. In incomplete febrile abortion with a free uterus and open cervix, immediate curettage should be performed.
2. With a closed cervix, the uterus may be emptied spontaneously by the use of quinine, but in the event of hemorrhage or rising temperature, evacuation by dilatation and curettage is indicated.
3. If the temperature falls and remains normal, the uterus may be emptied immediately.
4. When the infection has extended beyond the uterus, palliative and expectant treatment is indicated. [R. M. G.]

VENESECTION AND TRANSFUSION IN OBSTETRICS AND GYNECOLOGY.

WERNER (*Wien. klin. Woch.*, July 13, 1922) discusses the indications and contraindications for phlebotomy and transfusion in obstetrics and gynecology. The advantages of transfusion in acute, severe hæmorrhage are obvious. Like many modern obstetricians, the author seems unduly enthusiastic about the benefit of venesection in eclampsia. [R. M. G.]

CENTENNIAL OF GREGOR MENDEL.

REICHEL (*Wien. klin. Woch.*, July 20, 1922), on the hundredth anniversary of the birth of the great Mendel, summarizes his fundamental contributions to our knowledge of heredity, and points out its basic significance for the future of the science of genetics. Like many geniuses, Mendel died without seeing the importance of his discoveries appreciated. It was the medical profession which first realized and applied the principles of the theologian-scientist. [R. M. G.]

HYPELOPHONY.

GEURINA (*Wien. klin. Woch.*, Aug. 3-10, 1922) describes, under the name of hypselophony, a new method of pulmonary auscultation, based on a study of the overtones, which tend to become emphasized, while the basic tone recedes, over consolidated areas. He discusses various phenomena connected with this method, which seems of value in the study of tuberculosis. [R. M. G.]

GALVANO-PALPATION AND ROENTGEN RAYS.

KAHANE (*Wien. klin. Woch.*, Aug. 17-24, 1922) describes a method for the combination of the galvanic test of sensory and motor nerves with Roentgen fluoroscopy in the study and diagnosis of diseases of the neuro-muscular system, the nasal accessory sinuses, larynx, thyroid, thymus, lungs, heart, aorta, abdomen and pelvis. His technic is not new but there are novel suggestions in his concurrent use of two familiar modes of examination. [R. M. G.]

A TRANSLATION FROM NICOLAUS CUSANUS.

In the *Annals of Medical History* (Vol. IV, No. 2) VIETS of Boston presents an introductory sketch of Nicolaus of Cusa, followed by a translation of his "De Statibus Experimentis" from the Flach edition in the library of the late Sir William Osler. This treatise on experiments in statistics bears a fundamental relation to medicine; for not only does it present his great achievement of perceiving for the first time the importance of counting the pulse, but it contains significant suggestions on the use of gravimetric methods in the study of blood and urine. It was first published in 1176 as the last of a series of four dialogues between a learned and an ignorant man, following the Socratic pattern. An excellent bibliography and four interesting illustrations complete Viets' valuable paper. [R. M. G.]

CHOLECYSTENTEROSTOMY FROM AN EXPERIMENTAL STANDPOINT.

GATEWOOD and POPPENS, P. H., (*Surg., Gynecol. and Obstet.*, Oct., 1922). These authors write as follows: From the foregoing experiments, performed upon dogs, in which the gall-bladder was anastomosed to the stomach, duodenum, and colon, the following conclusions may be drawn:

1. The gall-bladder invariably becomes infected, regardless of the viscous used for anastomosis.
2. There is little, if any, difference between the

stomach and duodenum in the matter of rapidity of infection.

3. The colon is not the portion of the gastro-intestinal tract to be chosen by preference. The immediate dangers of peritonitis are much greater, and probably liver infections would occur earlier than when the upper part of the gut is used.

4. All livers become infected sooner or later if the method employed in our experiments be followed.

5. Cholecystenterostomy, from an experimental standpoint, is not an operation to be recommended for use except in well-selected cases, such as carcinoma of the pancreas, where the temporary comfort of the patient is paramount, or irreparable common duct obstruction. [E. H. R.]

ABSCESS OF THE LUNG.

LOCKWOOD (*Surg., Gynecol. and Obstet.*, Oct., 1922). This author writes as follows:

Contrary to the opinion of the early writers, that abscess of the lung is a common sequela of lobar pneumonia, a survey of the reported cases of the last century would lead us to conclude that it is a rare sequela.

By lowering the resistance in the lung tissue itself, the pneumonias (lobar, broncho and influenzal) predispose the patient to the development of lung abscess following pyogenic infection.

Lung abscess occurs more often between the years of 25 and 40. It is three times as common in males as females; it occurs three times as often on the right side as on the left, and about twice as often in the lower lobe as in the upper. Three out of four are peripheral and involve the pleura, and one out of four is multiple.

It must be borne in mind that recently a high percentage of lung abscesses has been the result of neglect or mismanagement on the part of the nose and throat surgeons, the oral surgeons, and the dentists. Such neglect or mismanagement is manifested in the selection of the anaesthetic, and in not keeping the patient's head low, and in not taking sufficient precautions to prevent the patient from inhaling foreign matter. Such a sequela may be avoided by (1) employing a local anaesthetic whenever possible in surgery of the mouth, nose, and throat, and in teeth extraction; (2) keeping the head low during such operations, if a general anaesthetic is employed, until the patient has thoroughly aroused from it; (3) taking care to prevent blood and mucus from accumulating in the throat and being aspirated; and (4) better hæmostasis in such work.

The diagnosis depends on the history, the amount, and nature of the sputum, the roentgen-ray, and the physical examination.

A study of results in these cases has led me to conclude that surgery should not be employed as soon as the diagnosis has been made, except as indicated. The mortality has been unnecessarily high in many instances. Instead, thorough medical treatment, with postural rest and drainage, should be instituted. When this fails, pneumothorax should be produced in selected cases, and surgery reserved for those patients who do not respond to the other two methods.

The exploratory needle should not be employed.

When surgery is decided on, paravertebral and local anaesthesia is necessary with gas and oxygen, should be used, and in the majority of cases a more deliberate, extensive, and logical operation should be planned than resection of the chest wall over the abscess, and cautery or blunt puncture of the abscess.

If the patient's condition is such that extensive operation would carry too much risk with it, resection, blunt puncture, and exploration of the abscess with the finger, should be the limit of surgery.

The surgeon, physician and roentgenologist should be intimately associated in the diagnosis and care of these patients. [E. H. R.]

PATHOLOGICAL COMPLICATIONS WITH DUPLICATION OF THE RENAL PELVIS AND URETER (DOUBLE KIDNEY).

BRAASCH and SCHOLL, JR., (*Surg., Gynecol. and Obstet.*, Oct., 1922). These authors write as follows:

One hundred and forty patients with duplication of the renal pelvis and ureter have been observed at the Mayo Clinic. The incidence of aberrant and bilateral duplications of ureters and pelvis reported in the literature is relatively too high owing to the tendency to report the more unusual cases. Of the patients in this series the duplication was unilateral in 135 (94 per cent.) and bilateral in 9 (6 per cent.). Of the 135 patients with unilateral duplication, 36 (25 per cent.) had complete duplication, and 99 (85.7 per cent.) had incomplete duplication. Of the 9 patients with bilateral duplications, 8 had complete duplication and 1 had incomplete.

Duplication may vary from duplication confined to the renal pelvis to duplicate pelvis with separate ureters opening into the bladder. The pelvis are generally unequal in size, the upper being the smaller, and are separated by a bridge of normal renal cortex of variable extent. When an unusually small renal pelvis is outlined in the pyelogram, the possibility of duplication should be suspected.

Complete duplication will be discovered more often if a careful search is routinely made for anomaly at the time of cystoscopic inspection. In cases of partial duplication the diagnosis is made only by means of a pyelo-ureterogram.

The lower segment is primarily involved more often than the upper.

Hydronephrosis is the most common pathological complication, and is due to ureteral obstruction, generally in the region of the juncture of the two ureters in cases of incomplete duplication.

In tuberculosis of double kidneys, gross evidence of the disease is generally confined to one segment, usually the lower, but in all cases histological examination reveals tubercles in the intervening renal tissue and extending into the remaining segment.

Occasionally when only one pelvis is outlined by the pyelogram, its unusual shape and contour may be misconstrued with pathological changes occurring in single kidneys, such as atrophic pyelonephritis.

In the series of 144 cases, the histories of 19 of which are here reported, 30 patients were treated surgically, 24 patients had definite pathological conditions which did not require surgical treatment, and in 27 evidence of disease was doubtful. Only 61 (42 per cent.) of the patients were without pathological complications, and the anomaly was discovered in the examination for other conditions.

Fifteen of the 30 patients operated on submitted to primary nephrectomies, and 4 to heminephrectomies; 2 of these later required complete nephrectomy. Six pyelolithotomies and three ureterolithotomies were performed. In one patient hydronephrosis was relieved by the cutting of an aberrant vessel, and in another symptoms were relieved by the ligation of an aberrant ureter from the upper pole of a double kidney.

In the treatment of pathological complications in a double kidney the indication for heminephrectomy is limited to but a few favorable cases. The possibility of infection extending to the remaining half of the resected kidney, which may necessitate subsequent complete nephrectomy, must be considered.

[E. H. R.]

HYDATID CYSTS OF THE HEART, WITH REPORT OF CASE.

MILES (*Surg., Gynecol. and Obstet.*, Oct., 1922). This author reports a very interesting case, which on post mortem examination showed a well-developed hydatid cyst of the right ventricle of the heart. The author gives a short historical review, reporting six other cases and a very good bibliography. These cases are

extremely unusual, and diagnosis has never been made before autopsy. Death has usually been sudden and unexplained on the usual pathological grounds except in cases where hydatid cyst has been known to exist in other parts of the body. [E. H. R.]

BONE FORMATION IN OPERATIVE WOUND CICATRICES.

JONES (*Annals of Surg.*, Oct., 1922) reports a unique case in which an operation for inguinal hernia was followed by definite bone formation in the scar. There was no history of infection. The new bone was not connected with muscle in any way, but lay in the scar tissue and was freely movable. It was not attached to the pubic bone, and it was easily separated from the connective tissue which extended through the little holes in the specimen. Histological examination showed the specimen to be true bone, no cartilage or connective cells were found.

The author explains the formation of it by stating that the operator, in placing his last suture, pricked the pubic bone with the needle, and carried some of the osteogenic cells into the wound, where they later proliferated.

The condition suggests the possibility of growing osseous tissue outside of the body. [E. H. R.]

INTUSSUSCEPTION OF STOMA FOLLOWING GASTRO-ENTEROSTOMY.

LEWISON (*Annals of Surg.*, Oct., 1922) reports an extremely interesting case in which intussusception occurred at the site of a gastro-enterostomy opening with symptoms of acute intestinal obstruction. The author furnishes an excellent drawing of this case.

[E. H. R.]

PERIPHERAL NERVE INJURIES ASSOCIATED WITH FRACTURES.

LEWIS and MILLER (*Annals of Surg.*, Oct., 1922). These authors write as follows:

Nerve injuries are associated with fractures much more frequently than supposed. They are frequently overlooked because of the hasty and incomplete examination of fractures. When fractures are examined the possibility of a nerve injury should always be kept in mind.

The character of the injury varies greatly, from the slightest contusion from which the patient rapidly recovers, to anatomic division and callus inclusion, which demand surgical interference.

It is often impossible to differentiate by the most careful neurological examination between physiologic interruption of the nerve current and anatomic division of the nerve.

There is a tendency in these cases to wait too long for spontaneous recovery.

When recovery has not commenced within three months after the injury, the injured nerve should be explored and the surgical procedures demanded by the pathological findings be instituted.

Neurolysis is the operation which will be most frequently required. Resection of the humerus should no longer be resorted to to permit of end-to-end suture of the musculospiral nerve. Tendon transplantation should be performed in these cases.

The prognosis is very favorable in injuries of this type because of the frequency with which the musculospiral nerve is the one injured, and because of the relative infrequency with which it is divided, only neurolysis being necessary.

In the late ulnar nerve palsies, transposition of the nerve to the front of the elbow will be necessary in the cases of cubitus valgus. When bony out-growths cause the paralysis, removal of such out-growths and the placing of the nerve in a healthy bed may be all that is required. [E. H. R.]

THE SURGICAL RELIEF OF INTESTINAL FOCI OF INFECTION IN CASES OF ARTHRITIS DEFORMANS

SMITH, R. (*Annals of Surgery*, October, 1922). This author writes as follows:

We believe that we have clinical proof that chronic polyarthritis is the result of a focal infection located in the ileocecal coil. That no study of a case of arthritis is complete without a careful investigation of the gastro-intestinal tract, especially of the ileocecal coil, for both motility and mobility. In the event that a pocket exists in the intestine, the rational procedure is first an abdominal operation to straighten out bad mechanics and restore function to the caecum, a prolonged medical régime to restore the unbalanced intestinal flora to normal and then such orthopedic procedures as are necessary to restore function to damaged joints. [E. H. R.]

TREATMENT OF CARCINOMA OF THE RECTUM.

COFFEY, R. C. (*Annals of Surgery*, October, 1922), presents, in the writer's opinion, the best article on the operative treatment of cancer of the rectum recently published. His diagrams so well explain the text that it is almost unnecessary to read his text, except to emphasize certain important steps. The logic of his operative procedure is easily seen. The article is of extreme value. [E. H. R.]

A BACTERIOLOGIC STUDY OF THE FLUID CONTENTS OF 100 GALL-BLADDERS REMOVED AT OPERATION.

DRENNAN, J. G. (*Annals of Surgery*, October, 1922). This author writes as follows:

In a series of 100 gall-bladders removed at operation only 19 per cent. contained fluid infected with bacteria; the infecting organisms were bacillus coli in 12 per cent. of the cases, a staphylococcus in 4 per cent., a streptococcus in 2 per cent., and a non-pigment-forming sarcina in 1 per cent.

The probable reason there is not a higher percentage of infected gall-bladder fluids is that the contained fluids have a concentration of bile too high, for bacteria will not grow satisfactorily if more than 70 per cent. of bile is present.

In the 19 per cent. of infected gall-bladder fluids the concentration of the normal bile had been lowered by inflammatory exudates, thus permitting the growth of bacteria in the fluid contents of the gall-bladders. [E. H. R.]

THE SURGICAL TREATMENT OF SYPHILIS OF THE STOMACH.

GRAHAM, E. A. (*Annals of Surgery*, October, 1922), contributes a valuable paper on this subject, giving a very accurate description of the lesions, and reports three cases in detail. He states in conclusion that surgical complications of gastric syphilis occur with probably greater frequency than is commonly recognized. These consist usually of deformities produced by scar tissue formation in the healing of the syphilitic process. They are commonly seen, therefore, as stenoses at or near the pylorus, but sometimes as hour-glass contractures or perigastric adhesions. In another group in which there is impaired motility without organic stenosis of the pyloric orifice but with rather generalized sclerosis of the whole stomach, it is doubtful how much good, if any, can be accomplished by surgical measures. In a study of thirty-four cases (including thirty-two from the literature and two from the author's series) resection of the pylorus gave uniformly good results in cases of stenosis of that orifice, while gastro-enterostomy was frequently followed by only slight or temporary

improvement. It would seem, therefore, that pylorotomy is more likely to be followed by complete relief of symptoms than is simple gastro-enterostomy, although a study of more cases may show that the latter operation is sufficient in cases of actual stenosis of the pylorus. There will remain certain cases with out organic obstruction in which surgical measures will probably not be indicated. [E. H. R.]

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS IN THE ADULT.

OLIVER, J. C. (*Annals of Surgery*, October, 1922), very briefly discusses the literature so far appearing on this subject. This literature is extremely meagre, only a very few cases having previously been reported. The author reports in detail a case in which the diagnosis and operation are described. The Rammstedt was employed with complete relief. [E. H. R.]

THYROID SURGERY AND THE DEMENTIA PRAECOX SYNDROME.

EASTMAN and EASTMAN (*Annals of Surgery*, October, 1922).

These authors call attention to the frequency of thyroid disease and dementia praecox occurring in the same patient, and give full histories of four cases in which hemithyroidectomy was done for relief of the nervous symptoms. They discuss various theories in regard to the intra-relationship of these two conditions, but do not attempt to entirely explain it, and they conclude from their observations that there seems to be a reasonable expectancy that the partial removal of the thyroid will in certain cases relieve the symptoms of dementia praecox. The article is suggestive. [E. H. R.]

THE CHOICE OF OPERATION FOR GASTRIC ULCER IN VIEW OF THE LATE RESULTS.

WOOLSEY, G. (*Annals of Surgery*, October, 1922), writes as follows:

For ulcers three to four or more inches from the pylorus, the choice lies between excision and meso-gastric resection. On account of the better results I prefer excision and gastro-enterostomy, except for ulcers with hour glass contraction and large indurated ulcers, especially those on the posterior surface.

For ulcers near the pylorus, or within three inches or so of it, I prefer the Polya method. It is easy, reasonably rapid and has given the best results of any method.

In case the operation is done in two stages, or a gastro-enterostomy has previously been done, the Billroth II method is the rational procedure, but the two-stage procedure is rarely called for in cases of ulcer.

For ulcers at, or close to, the pylorus, especially such as cause a stenosis, a posterior gastro-enterostomy is the simplest and safest operation, gives good results and may be the method of election for those not experienced in resection. It is quite possible for such an operation to benefit or cure ulcers remote from the pylorus.

The possibility of cancerous degeneration of a gastric ulcer would in general lead to its resection or excision, but, as was long ago pointed out by Kocher and others, such degeneration is quite uncommon in cases treated by gastrojejunostomy. In view, however, of this danger, whether we class it at a high per cent. with some or a low per cent. with others, I firmly believe in the complete removal of gastric ulcers by resection or excision unless the operative risk is greatly increased on account of the general or local condition of the patient. [E. H. R.]

X-RAY AND CLINICAL FINDINGS IN NORMAL CHEST OF CHILDREN SIX TO TEN YEARS.

The National Tuberculosis Association Medical Research (*Canad. M. A. J.*, vol. xii, No. 8, Aug., 1922) reports their findings in over 500 children with no chest abnormalities. Their findings are presented as follows: clinically, the ideal, normal child is a hypothetical impossibility. Children, apparently healthy, symptom-free and active, show on careful examination many deviations from fixed standards, variations that must be interpreted as within physiological limits; standards of height and weight must be elastic, measures of resonance and resilience of the chest must not be rigid, and estimates of acoustic phenomena must permit of a range of difference from the ideal. These facts, clinical experience establishes beyond peradventure, and they suggest a corollary, namely, that x-ray examination of the chest of such children may be expected to show comparable deviations from a fixed ideal roentgenogram. Inasmuch as the changes referred to are dependent often upon alterations that persist as the residua of past infections of the respiratory tract, it is obvious that a careful anamnesis, with special reference to all infections, is necessary if diagnostic errors are to be avoided. Even a history carefully taken is often unreliable, as minimal infections are soon forgotten by many, and among the unintelligent classes even more significant indispositions are not readily recalled. Failure properly to evaluate these deviations from a fixed standard will often lead to the unwarranted diagnosis of disease and to even less justifiable treatment. With a proper appreciation of the widest variations that the normal may present from the ideal, the informed clinician is better able correctly to understand the findings of the roentgenologist, and each, coöperating with the other, is less liable to error. D'Espine's sign as indicative of enlarged tracheo-bronchial lymph nodes is of little value. Recognition of and familiarity with the foregoing data are of cardinal and practical importance to every patient, potential and established. Without a proper appreciation of the facts set forth, no intelligent differentiation between a normal and an abnormal respiratory tract can be made. The normal chest of the child from the roentgenologic standpoint is subject to such wide variations within normal limits as to be beyond the possibility of description. The conglomerate shadow commonly called the hilum shadow, when found lying entirely within the inner third or zone of the lung area, can be disregarded (or regarded as normal), except where it is made up of a solid mass of homogeneous shadow giving undoubted evidence that it represents a growth or mediastinal pleurisy. Calcified nodes at the root of the lung, without evidence of lung disease, are of no significance except as a possible evidence of some healed inflammatory condition, possibly but not necessarily tuberculous. They are a common finding in normal chests. In brief, to establish the presence or absence of disease, it is imperative that all data—clinical, laboratory, and roentgenographic—must be evaluated and correlated and that no one fraction of the evidence be stressed to the exclusion of the others.

THE EFFECTS OF ULTRAVIOLET RAYS ON THE CALCIUM AND INORGANIC PHOSPHATE CONTENT OF THE BLOOD SERUM OF RACHITIC INFANTS.

TISDALE, F. F. (*Canad. M. A. J.*, vol. xii, No. 8, August, 1922), uses the following technic: he started with exposures of 5 minutes' duration with the lamp 100 cm. from the body, in the case of small infants. The length of exposure was gradually increased and the lamp moved nearer the body until a maximum exposure was given of 15 minutes' duration at 60 cm. He finds that exposure of rachitic infants to ultraviolet rays from a mercury vapor quartz lamp, for

very short periods, caused a marked increase in both the calcium and inorganic phosphate content of the blood serum, which was followed by clinical and roentgenographic evidences of healing. No increase in the serum calcium and inorganic phosphates was obtained by prolonged exposure to the rays from an ordinary 500-watt incandescent lamp.

POST-OPERATIVE COMPLICATIONS OF THE RESPIRATORY TRACT.

DECKER, H. R. (*Canad. M. A. J.*, vol. xii, No. 8, August, 1922), found that those with history or evidence of recent acute respiratory inflammation, those with chronic lesions, as bronchitis or emphysema, those with pulmonary hypostasis, whether cardio-renal, or due to cachexia of old age, are poor respiratory tract risks. He carries out the following prophylactic régime: before operation—careful history and physical examination are done in order to find cases of the above types; careful nursing rules are carried out—a 70° temperature in bathrooms is maintained; the patients are kept warm and out of drafts; the anaesthetic is carefully chosen, replacing ether in many cases by spinal or rectal anaesthesia; oral hygiene is insisted upon; during operation—careful precautions are taken against chilling; the anaesthetic is given only by one especially trained for it; surgical technic is designed to eliminate the etiologic factors of thrombo-embolism, as suggested by Ochsner; dressings are applied firmly, but so as not to impede respiration, abdominal binders not being often used; after operation—exposure is carefully avoided, free movement in bed is encouraged, and raising of the head and thorax from the flat position is encouraged, especially if hypostasis is present.

FEAR, A HARMFUL EMOTION—HOW MAY WE ELIMINATE IT FROM THE SURGICAL PATIENT'S MIND?

GUTHRIE, DONALD (*Canad. M. A. J.*, vol. xii, No. 8, August, 1922), suggests the following points to be carefully considered in a surgical hospital in order to minimize the patients' fears: the doorman, telephone girl, clerks, etc., at the entrance, must be of a cordial type; the patient must not be kept waiting in the ward to watch the hurrying about while she seems to be neglected; the admission should be to a convalescent ward, not to one where is suffering; there should be as little delay as possible before operating; the surgeon should personally talk the case over the night before and encourage the patient; sound sleep should be provided, not a night of trips to the bathroom; operations should be done as early in the day as possible; the anaesthetist should be most carefully chosen, and silence should be preserved by all about except the anaesthetist, and rattling and bustling about should not be permitted; recovery should be in a quiet room, morphia should be given freely, and an abundance of water; before discharge, the patient should be told in detail what the operation was, what the after-care should be, and encouraged to report progress from time to time after returning to the patient's home physician.

REPORT OF A CASE OF BROMIDE ERUPTION IN A NURSING INFANT.

BOONE, F. H. (*Canad. M. A. J.*, vol. xii, No. 8, August, 1922), reports a case of a six months' old infant that received sufficient bromide through the mother's milk to produce marked cutaneous signs of bromide poisoning. The mother was receiving 45 grains of sodium bromide a day, for seven and a half weeks. The first symptom in the baby began four and a half weeks after the mother began taking the drug. The mother never developed any symptoms. After discontinuance of the drug, the baby steadily improved.

BONE SUPPURATION: THE BASIC CAUSE OF RENAL CALCULI IN TWENTY CASES FOLLOWING WAR WOUNDS.

PAUL, H. E. (*Canad. M. A. J.*, vol. xii, No. 9, September, 1922), presents a discussion of the previous writings on the subject and the findings in twenty of his cases in ex-soldiers. The oldest was 37, the youngest 22; with one possible exception there appeared to be a definite history of bone suppuration in all. Urine from 18 of these cases showed well marked evidence of infection; one case was constantly free from organisms by the microscope, the other was so on the affected side by culture. Staphylococci were the commonest; colon bacilli occurred. Lack of drainage in the upper urinary tract seems not to be an important primary cause of the formation of renal calculi following such a systemic infection as bone suppuration.

MESENTERIC THROMBOSIS—WITH REPORT OF TWO CASES.

PARKER, C. B. (*Canad. M. A. J.*, vol. xii, No. 9, September, 1922), reports in detail two cases, one with operation and recovery, the other with operation and autopsy; he describes the cases in detail.

A STUDY OF 443 CASES OF HEREDITARY SYPHILIS WITH ESPECIAL REFERENCE TO RESULTS OF TREATMENT.

WHITE, P. J., and VEEDER, B., of St. Louis (*A. J. Syphilis*, vol. vi, No. 3, July, 1922), report their investigation of 396 families containing 443 definitely congenital syphilis who were treated and watched with adequate hospital, clinic, and social service facilities; 197 were under two years of age, the other 246 children were first seen when in the stage of "late" congenital syphilis. They discuss some of the literature on congenital syphilis by previous authors.

From the social standpoint, they found the group difficult to deal with on account of lack of interest on the parents' part, only 52 parents out of 230 helping to follow out a thorough course of treatment, while 95 were absolutely uncooperative. In spite of careful and intensive follow-up work, only about one-third of the cases were brought back long enough to have adequate treatment. From the medical point of view, they found that the individual case has a fair chance of clinical and serological recovery or improvement, occasionally with fairly little treatment, much better with thorough treatment with the arsenicals and mercury; if serological and clinical evidence of central nervous system involvement is present, the chances of recovery or real improvement are poor. As regards the group as a whole, they find the results disappointing; even in spite of treatment, the infant mortality rate was three times that for other infants of the same age limits in the same city (St. Louis). Approximately one-third of the group had involvement of the central nervous system, and showed very little improvement; the residue left usually placing the child among the socially unfit. The authors group as follows the 308 cases whose end-results are known: cured or recovered, 22%; improved, 35%; unimproved, 17%; died, 25%. They advise as the greatest help to the problem that the syphilitic mothers be treated so far as possible both to prevent the children from being syphilitic, and also to cut down the large number of syphilitic foetal deaths, as prevention is much more satisfactory than cure.

THE DIAGNOSIS OF EARLY SYPHILIS.

STOKES, J. H., and MCFARLAND, A. K. (*A. J. Syphilis*, vol. vi, No. 3, July, 1922), analyze 231 cases of primary and secondary syphilis, largely untreated. They emphasize the fact that the primary lesion should be diagnosed not by clinical criteria, but by the dark field microscope and the Wassermann test. They found that 55.65% of all genital lesions were

proved at the first examination to be chancres of syphilis. 88% of the primary lesions gave positive dark fields the first week, 66% were positive regardless of age, while none were positive by the ninth week. 70% of the Wassermann tests made during the second week of the primary were positive, thus showing that each test is at its best when the other is the least useful. No local applications whatever should be applied to the lesion until the dark field examination has been repeatedly made, yet 11 out of 17 cases gave positive results, including one that had been cauterized and three that had had a little arsphenamin and mercury. Aspiration of the satellite bubo yielded 50% positive dark fields. Of 80 patients who had been previously examined, only three had had a dark field examination made. "Chancroid" should never be diagnosed within four months of the appearance of the lesion under suspicion, until the possible presence of syphilis has been absolutely excluded. All genital lesions (the reviewer would add, all lip lesions) should be considered chancres until proved to be otherwise. One man had been used as a transfusion donor while his chancre was present, and 10 days before the secondary eruption appeared, when he should have been at the height of his spirochetemia. In the secondary moist lesions, 23 out of 24 dark field examinations were positive. In this series, 24% of the patients with well developed secondary syphilis, a high percentage, could give no history of any chancre, including one physician; this number includes women, who are apt to show no primary. 75% of the women, 64% of the men, had infectious lesions when first seen. A half of the group had constitutional symptoms with the secondary lesions, only 4 in 28 in the pre-eruptive stage; the women showed a greater percentage than the men, 63% as against 43%; the leading symptoms were sore throat, headache, and head pain. Combinations of mild fever, sweats, loss of weight, asthenia, gastrointestinal symptoms, nervous irritability, arthritis and myalgic pains, and anaemia, are frequent and are easily confused with early tuberculosis; they justify a routine Wassermann test in suspected tuberculosis, especially in early adult and middle life.

AN ARSPHENAMIN DERIVATIVE SUITABLE FOR SUBCUTANEOUS ADMINISTRATION.

VOEGTLIN, DYER, and THOMPSON, of the Division of Pharmacology, Hygienic Laboratory, U. S. P. H. Service, describe in detail their experimental work on an arsphenamin derivative, prepared from arsphenamin, formaldehyde, and sodium sulphite, which began to be made in 1919 by the Laboratoire de Biochimie Medicale in Paris, hoping to stimulate others to try it out. It closely resembles nearsphenamin chemically and in appearance, but is very stable in watery solution in the presence of air. It gives no local irritation following subcutaneous injection. It has been tried out by several clinicians in a small number of cases, not enough yet so that its therapeutic dose has been determined, though probably doses slightly larger than those of nearsphenamin can be used. The toxicity is about the same as the average nearsphenamin, while the trypanocidal power is slightly less. The excretion rate of the arsenic in the drug is about the same as in arsphenamin and nearsphenamin.

THE WASSERMANN REACTION FROM THE CLINICIAN'S POINT OF VIEW.

BROEMAN, C. J. (*A. J. Syphilis*, vol. vi, No. 3, July, 1922), discusses 1742 Wassermann tests made on 366 private cases, giving in chart form the Wassermann reports from three laboratories, the diagnosis, and in many cases notes as to the exact symptoms, amount of treatment, etc. He emphasizes the importance of careful clinical examination and history, especially in view of the fact that this series showed a discrepancy

of some sort in 36% of the cases, 52 cases with definite syphilis had negative Wassermann tests in at least one laboratory. A clean cut case of syphilis needs no Wassermann, but one should always take one to prevent subsequent criticism by the patient or another physician. A negative Wassermann is of no value in the presence of a penile lesion. A diagnosis of syphilis on one positive Wassermann, especially a weakly positive, cannot be too strongly condemned, but must be checked up by clinical findings or several tests in more than one laboratory. An early negative Wassermann in the course of treatment is encouraging, but does not mean cure by any means, as a varying per cent. of cases of very definite syphilis have negative Wassermann tests. The author emphasizes the need of a more standardized technic of the Wassermann reaction, and a need of the serologists to realize more their responsibility in reporting Wassermanns.

THE DISTRIBUTION AND EXCRETION OF ARSENIC AFTER INTRAVENOUS ADMINISTRATION OF ARSPHENAMIN IN CHILDREN.

CLAUSEN, S. W., and JEANS, P. C., (*A. J. Syphilis*, vol. vi, No. 3, July, 1922), studied a group of children under treatment for syphilis to determine the excretion of the arsenic, and studied the distribution in the body on kittens. They gave to the children in all cases a dosage of 10 mg. per kilo of body weight. Blood was taken at intervals of 2, 10, 20, and 30 minutes, and 1, 3, 6, and 24 hours after the injection. They describe in detail their method of arsenic determination, and give tables and graphs showing their results, which they summarize as follows: Arspheamin rapidly disappears from the blood, but 10% remaining in one hour. In the blood it is present exclusively in the plasma. The organs taking up the largest amounts are the liver and small and large intestines. The excretion begins immediately, is very rapid at first, gradually diminishing until at the end of two weeks only traces are found. However, at the end of two or even three weeks 50% is still in store in the tissues. It is excreted five times as rapidly in the stools as in the urine. The curve of excretion by the urine is a peculiar one and is evidently a composite of two curves. It seems likely that the curve of excretion via the stools would be of the same type if the stools should be collected accurately at stated intervals. The amount of arsenic found in the cerebro-spinal fluid is greatest in the first hour (in some cases two hours) after intravenous administration. The amount of arsenic found in the cerebro-spinal fluid seems to depend upon the amount of inflammation present. In some children with no evidence of neuro-syphilis no arsenic is found. The greatest amounts were found in those cases with evidence of the most active inflammation. More was found in infants with neuro-syphilis than in older children similarly affected. In all patients was noted a diminishing amount of arsenic in the cerebro-spinal fluid at succeeding injections and for the same time intervals. The arsenic content of the spinal fluid is at least as great in cases of cerebro-spinal syphilis after intravenous administration of arspheamin as would result from the intrathecal injection of arspheaminized serum according to the Swift-Ellis technic.

CARCINOMA OF THE TONGUE AND ITS TREATMENT WITH RADIUM.

TAUSSIG, LAWRENCE (*Arch. of Derm. and Syphil.*, vol. vi, No. 4, October, 1922). A gumma, leukoplakia, and chronic syphilitic glossitis may all predispose to cancer, though the determining factor in the change is obscure. In the non-syphilitic, cancer of the tongue may be caused by the excessive use of tobacco, or may start in a chronic ulcer caused by a rough tooth,

though in many, no previous lesions seem to have been present. The author has treated during the last two and a half years 11 patients with cancer of the tongue; two were women, the ages varied from 36 to 93; 4 had syphilis as well; 2 are clinically well two and a half years after radium treatment, one after one and a half years, one at six months, 5 showed metastasis at time of treatment and all died, 5 others have died. The author believes that with improved technic 25% of unselected cases of cancer of the tongue can be cured with radium.

CANCER OF THE LIP TREATED BY ELECTRO-CAUTERIZATION AND RADIATION.

PEABLER, G. E. (*Arch. of Derm. and Syphil.*, vol. vi, No. 4, October, 1922), states that no form of treatment will cure late cases, so early and thorough treatment is necessary, always by radiation, often by other means as well; while all irritations of the lip should be looked upon as either malignant or syphilitic if lasting over a month. 105 private cases were treated, 80 primary, 20 recurrent, and 5 post-operative. Of the 80 primary cases 74 recovered and have been well for from several months to 18 years, 2 died of a continuation of the disease, two had recurrences, the outcome of one is not known. Radiation should be used thoroughly in all cases. If surgery or electro-cauterization is to be used also, a preliminary radiation with a full erythema dose should be given over the lip and chin, submental and submaxillary regions, and repeated two to three weeks later, after the operation. Metastatic lymph nodes should be treated by surface radiation followed by excision or by radium implantation.

TREATMENT OF CANCER OF THE LIP BY RADIATION.

LAIN, E. S. (*Arch. of Derm. and Syphil.*, vol. vi, No. 4, October, 1922). The cellular morphology of cancer of the lip has less importance in the prognosis than the location or degree of development or the age of the patient. He has repeatedly observed that on account of a beginning atrophy of the lymph system, after a certain age the prognosis is bad. Especially is this true of cancer of the lower lip. We believe that a prickle or a squamous cell cancer, in the early stage of its growth, will undergo degenerative changes under radiation from either radium or roentgen ray just as the basal cell variety does. They differ only in the amount of radiation necessary and the technic of its application.

Finally he believes that sufficient statistics, verified both by clinical and laboratory findings, have now accumulated to justify the conclusion that cancer of the lip is equally and perhaps more amenable to treatment by roentgen ray or radium than by surgery, and in most cases radiotherapy is to be preferred.

YAWS: ITS MANIFESTATIONS AND TREATMENT BY NEO-ARSPHENAMIN.

GUTIERREZ, P. D. (*Arch. of Derm. and Syphil.*, vol. vi, No. 3, September, 1922), discusses 275 cases of yaws treated near Manila. He states that in this locality at least the disease is confined largely to the poor and to the coast towns; the disease is transmitted by direct contact, usually in childhood and adolescence, and scabies seems to be a factor in the transmission of the disease. The disease has three stages—the primary, the secondary, and the tertiary. The primary has an incubation period of from two to four weeks, develops usually on the exposed surfaces, starts as a papule, becomes moist after a week, a crust soon forms and an ulcer develops under the crust. This lesion is usually painful, and the neighboring glands are swollen. The primary lesion may heal before the secondary eruption appears, or may

last for many months or some years, longer even than the secondary lesions in the same patient. The secondary lesions seem to appear from one to three months from the beginning of the primary, and are preceded by malaise, fever, and bone and joint pains. The secondary lesions may occur in successive crops, each taking from three months to a year to clean up. Most of them take one of the following types: nodular or framboesiform, papular, or macular. The secondary and tertiary lesions frequently intermingle, occasionally the primary also. The tertiary lesions are largely of the following types: chronic periostitis of the long bones, painful and disabling; gummata, frequently closely resembling syphilitic gummata; keratosis, especially of the palms and soles. Yaws is much more sensitive to arsphenamin than is syphilis.

THE SIGNS OF FILARIAL DISEASE.

B. BLACKLOCK (*Annals of Tropical Medicine and Parasitology*, vol. xiv, No. 2, July, 1922).

It is generally believed that "tropical elephantiasis" results from filarial infection, but that "sporadic elephantiasis" such as occurs in temperate climates is in no way dependent on the presence of the filaria. Blacklock's findings based on the examination of 240 cases seen in or near Sierra Leone lead him to the conclusion that "many of the signs of filarial disease" have no more correlation with the presence of microfilaria in the blood than has hernia; some have less. Accepted views regarding the rôle played by the filaria in elephantiasis may perhaps require revision.

[G. C. S.]

THE BLOOD SERUM IN PERNICIOUS ANEMIA.

BROCKBANK, E. M. (*British Medical Journal*, July 22, 1922), presents the following conclusions as a result of his observations on the blood serum in pernicious anaemia:

1. The serum of pernicious anaemia is always definitely yellow and that of all other anaemias nearly colorless. The color may be seen in two or three drops of serum in a small glass bulb.

2. Oxyhaemoglobin absorption bands appear in the serum of the great majority of cases of pernicious anaemia, and can easily be seen by a pocket spectroscope. They are not seen in the serum of other anaemias.

3. Continental observers have found haematin in the serum of some cases of pernicious anaemia, and they believe that bilirubin gives rise to the yellow color.

4. There may be some free oxyhaemoglobin in the plasma of the circulating blood of the disease.

5. It is possible, judging from the serum, that there are at least two varieties of the disease.

6. Blood plates are generally very scanty or absent in the disease, but when present are a sign of potential regeneration of red cells by the bone marrow and indicate a good temporary prognosis.

7. The abnormal conditions of the red corpuscles suggest the possibility of pernicious anaemia being a malignant disease of the blood.

[J. B. H.]

SOME ASPECTS OF CARDIAC DISEASE.

HAY, JOHN (*British Medical Journal*, July 22, 1922), discussing cardiac disease, summarizes his remarks as follows:

Irregular action of the heart is not merely a matter of degree. The types differ fundamentally and their significance varies widely.

The most important group is that of fibrillation of the auricle, characterized by a specific and fundamental change in the activity of the auricles, and a frequent and disorderly action of the ventricles.

This increases the load of the heart and is the most common cause of cardiac failure. The recognition of this form of irregularity is not difficult, requiring only the fingers and a trained intelligence.

Fibrillation is not confined to any one particular form of cardiac lesion, but may occur at any age, and when once established tends to persist.

The digitalis group produces a remarkable slowing of the ventricular rate with consequent improvement in the patient.

Auricular fibrillation can in 50 per cent. of the cases be terminated by quinidine sulphate, but in many patients the fibrillation recurs, and the exhibition of this drug is not without danger.

[J. B. H.]

COLLIS, HINDHEDE, BALLANTYNE, STOCKARD and others (*British Medical Journal*, August 12, 1922) continue the discussion of alcohol and its relation to social problems.

Collis considers alcohol and industrial efficiency, the effect of convivial drinking and of industrial drinking. Considering the industrial and experimental evidence in regard to the subject, although alcohol possesses a charm for removing the irritating effects of industrial fatigue it is a charm purchased at great cost to efficiency. The evidence drawn from American sources as to the beneficial effect upon industrial efficiency of prohibition when taken as a whole can hardly be controverted, even though it may be criticized piecemeal. He summarizes his remarks as follows:

1. Alcohol is a drug possessing energy which the body can use, but probably not for muscular work.

2. Alcohol interferes adversely with reflex acts and neuro-muscular co-ordination. The higher the concentration in which it is consumed the more pronounced is the effect.

3. Alcoholic habits vary with industries, and where most pronounced time-keeping is most irregular.

4. Industrial accidents are increased by the consumption of alcohol even though in moderate amounts.

5. There is no evidence, either experimental or practical, that alcohol is advantageous to industrial efficiency, and much that it is harmful.

6. Prohibition in America appears to be associated with greatly improved industrial efficiency, whether measured by accident frequency, lost time, or output.

Hindhede considers alcohol restriction and mortality; Ballentyne takes it up with relation to infantile mortality.

Stockard considers the subject as a selective agent in the improvement of racial stock.

[J. B. H.]

THE BACTERIOLOGY OF INFLUENZA.

GORDON, MCINTOSH, and others (*British Medical Journal*, August 19, 1922) discuss the bacteriology of influenza. McIntosh concludes his remarks as follows:

1. The predominating micro-organism in the secretions and lesions of the late epidemic was *B. influenzae* (Pfeiffer), which could be demonstrated in from 75 to 80 per cent. of the cases.

2. Other members of the catarrh-producing group of bacteria (pneumococci, streptococci, *M. catarrhalis*, etc.) were much less frequent.

3. Serological examinations confirmed an infection by *B. influenzae*.

4. The possibility of producing, experimentally, influenza-like lesions in the respiratory tract and lungs with filtered cultures of *B. influenzae* was demonstrated.

5. No evidence was obtained in support of the view that influenza is due to a filter-passing virus.

[J. B. H.]

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THE AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS.

THE organization of "The American Society of Clinical Pathologists" was accomplished in St. Louis in May, 22 and 23, 1922. The proceedings of this first meeting, containing the discussion preliminary to organization, and the constitution and by-laws adopted, stimulate reflections upon the status of those engaged in the practice of an important and essential part of medicine, as well as the use and abuse of the pathologist by physicians and surgeons. The objects of the Society are stated to be:

"(a) To promote the practice of scientific medicine by a wider application of clinical laboratory methods to the diagnosis of disease; (b) to stimulate original research in all branches of clinical laboratory work; (c) to establish from time to time uniform standards for the performance of various laboratory examinations; (d) to elevate the scientific and professional status of those specializing in this branch of medicine; (e) to encourage a closer coöperation between the practitioner and the clinical pathologist."

The Code of Ethics, in the by-laws, is as follows:—

"Section 1.—The Code of Ethics of this

society shall be the same as that of the American Medical Association.

"Section 2.—It is deemed unethical to publish advertisements in medical journals calling attention to the merits of a particular laboratory or announcing the fees for laboratory examinations.

"Section 3.—It shall be deemed unethical for a member of the society to lend his name for publication in the laboratory advertisements violating this Code of Ethics."

The discussion which preceded the creation of this society clearly indicates that the chief incentive to organize was dissatisfaction with the prevailing status and financial returns of the practice of clinical pathology.

If the practice of clinical pathology is a branch of medicine, no other branch is so thoroughly commercialized.

The discussion calls attention to the firms with offices in many cities, advertising their proficiency and their fees and rejoicing in the sponsorship of eminent professors of laboratory subjects in some of our best universities. Attention is also called to the prevailing regard on the part of "clinicians" of the clinical pathologist as a technician.

For our part, we believe that the major part of the work done in clinical pathological laboratories is technicians' work, just as it has come to be so in many of our large hospitals. Wassermann reactions, metabolism tests, quantitative urine and blood analyses, in fact any diagnostic procedure removed from the patient that may be accomplished by quantitative methods may be relegated to well-trained non-medical workers. However, the interpretation of the result as applied to the patient is made not by the house-officer, but by some one higher in the medical staff, and often by the chief of service.

In the interpretation of the laboratory procedure lies the crux of the situation. The clinical pathologist, that is, the person who delivers reports on specimens of tissue, blood, urine, feces and cerebro-spinal fluid, rises above the status of technician only when such reports involve interpretation. The diagnosis of a microscopic preparation made from tissues, the diagnosis of fluoroscopic studies of stomach or intestines, from x-ray plates of bones, and some bacteriological procedures, can only reliably be made by persons of extensive experience and wide knowledge of possibilities. These and possibly a few other laboratory procedures belong to the expert whose services should be recognized by fees and esteem as are those of any other consultant. As consultants, the pathologist, the roentgenologist and the bacteriologist should be prepared to assume, and as a matter of fact are accustomed to assuming, the respon-

sibilities of authorizing important medical and surgical procedures for which services the patient should be as willing to pay as he is to pay for the opinions of men whose data are obtained by stethoscope, ophthalmoscope, bronchoscope, speculum or any other time-honored method.

To the laboratory man, holding a university position, the practitioner sometimes appears in the light of the middle man in commerce, for not only does the practitioner profit by the application of discoveries made in laboratories, but he also conceals from the patient the importance of expert services on the part of the pathologist enlisted for help in diagnosis. Another practitioner called in consultation expects and receives a consultant's fee, the pathologist is grudgingly conceded a small fee, in amount, in most parts of the country, determined by the charges of the commercial laboratories.

The laboratory worker has made modern medicine and surgery possible—where would surgery be without asepsis?—and like scientific men in general "He digs for others and then begs for a bit of the gold he has dug" (See Cattell, "The Organization of Scientific Men" in *The Scientific Monthly*, June, 1922).

Scientific workers as a whole are content to labor because of love for the work, since the road from discovery to financial return is a long one and not apparent or attractive. However, the pathologist who does not desire to practice is constantly being forced to turn away from his research pursuits in order to give assistance in diagnosis, and after time-consuming work often has occasion to reflect on the meagerness of his reward, in appreciation and with money, as compared to that of a clinical consultant.

The pathologist lives close to the practitioner; that he is necessary is evidenced by the free laboratory services supported by the State. The beginner in pathology quickly learns what lies ahead for him in academic or hospital work. He sees that nearly every pathologist has to do a large amount of routine in hospital or medical school, and much free work for charity patients in order to earn his salary and privilege of engaging in research. The anatomist, the physiologist, the pharmacologist, has his teaching and research. The pathologist has in addition routine and charity work. The beginner in pathology quickly realizes also that he may pursue most lines of pathological research in laboratories of medicine or surgery and for a period of years thus straddle the fence dividing laboratory from clinical career; or finally engage in practice with financial return in place of routine, while carrying on investigation. These are some of the reasons why so few able men are now entering pathological laboratories and why there are several important professorships of pathology vacant, while nearly every first-class medical school has one or more fairly important positions in pathology unfilled.

Reflections of this sort make us approve of the organization of the American Society of Clinical Pathologists and to wonder if pathologists in teaching positions would not be doing a service in promoting their subject if they, too, would combine in insisting upon the financial value of their special knowledge when applied to practice.

The increased dignity that comes with earning capacity alone would be an inducement for men to enter the field of pathology, while the possibility of earning a living in the advent of failure in academic advancement would make the decision towards pathology less venture-some.

These reflections, while based upon an analysis of the situation in pathology, lead us to no definite remedial conclusion. In France in one important medical center a movement has begun with the object of elevating the pathologist to a consultant's status in medical practice. Here in Boston for many years, it is well to remember, that at the Harvard Medical School the custom of the Department of Pathology does not permit individuals to receive fees for diagnoses. Bills are rendered by the department and all fees collected go into a fund used for defraying expenses of research and for the maintenance of a free autopsy service for the benefit of the physicians in the vicinity of Boston.

The tradition of the pathologist that it is his duty to encourage the use of scientific methods in medicine is hard to down; does it receive the encouragement it deserves?

MEETING OF THE SOUTHERN MEDICAL ASSOCIATION.

THE programme for the meetings of this body in Chattanooga covering November 13, 14, 15 and 16, gives evidence of careful planning, for eighteen sections covering as many departments of medicine, surgery, hospitals, public health and medical education, have schedules of exercises.

Liberal provision has been made for the entertainment of ladies and other guests. The programme occupies eleven pages of the *Journal of the Southern Medical Association*, and with the exception of the programme of the meetings of the A. M. A. is more voluminous than any medical programme within the memory of the writer.

This is the sixteenth annual meeting of this Association, which has a membership of about seven thousand. The success of these meetings illustrates the advantages of bringing States into closer relations for the interchange of opinions and consideration of problems of common interest.

Our New England States could advantageously unite in meetings patterned after those arranged by the Southern Medical Association.

News Notes.

BOSTON CITY HOSPITAL.—A staff clinical meeting was held in the Cheever Surgical Amphitheatre Friday, November 17, at 8 P.M. The following subjects were discussed: Presentation of current explanations of the mechanism involved in the production of Tremor; interpretation, and significance; Henry Viets. Mechanism of production and functional interpretation of Convulsions; Harry C. Solomon. Physiological mechanism and theories explaining the paresthesias (numbness, burning, tingling sensations); Abraham Myerson.

SPRINGFIELD ACADEMY OF MEDICINE.—The November meeting of the Springfield Academy of Medicine was held at 137½ State Street, Tuesday, November 14, 1922, at 8:30 P.M. Dr. J. P. Hognet of New York City read the paper of the evening, entitled "Hernia." Dr. Hognet is Associate Professor of Surgery at Cornell Medical School, New York; attending surgeon at the French Hospital, New York City; and attending surgeon at the Ruptured and Cripple Hospital, New York City.

A MISSTATEMENT WAS MADE in the editorial headed "The College of Surgeons—Boston," which appeared in the JOURNAL Nov. 2nd, 1922. Dr. Henry J. Bigelow was mentioned as the man who created Mt. Auburn Cemetery. This is not correct. Dr. Jacob Bigelow, his father, founded Mt. Auburn, "and also drew the plans for the three principal architectural structures there—the Gate, the Tower and the Chapel, which latter is now the Crematory." The writer regrets the mistake. The general fact, however, of the relationship of well-known Boston surgeons to matters of importance in Massachusetts, not always entirely medical, remains not only true, but confirmed and even extended by this correction, to architectural adornments of Mt. Auburn, as well as to its foundations of earth and granite.

[J. B. B.]

DEATH RATE IN BOSTON.—During the week ending Nov. 11, 1922, the number of deaths reported was 221, against 182 last year, with a rate of 15.09. There were 32 deaths under one year of age, against 24 last year. The number of cases of principal reportable diseases were: Diphtheria, 64; Scarlet Fever, 36; Measles, 56; Whooping Cough, 60; Typhoid Fever, 2; Tuberculosis, 34. Included in the above, were the following cases of non-residents: Diphtheria, 7; Scarlet Fever, 7; Whooping Cough, 1; Tuberculosis 8. Total deaths from these diseases were: Diphtheria, 4; Scarlet Fever, 1; Whooping Cough, 1; Tuberculosis 11. Included in the above, were the fol-

lowing cases of non-residents: Scarlet Fever, 1; Tuberculosis, 1.

THE WORCESTER DISTRICT MEDICAL SOCIETY.

The annual open meeting of the Worcester District Medical Society was held in Horticultural Hall, Worcester, Nov. 8, 1922, at 8:15 P.M. The meeting was called to order by President Dr. George E. Emery, who in turn turned it over to Dr. Kendall Emerson, the chairman of the Worcester Committee for the control of cancer, to preside. In introducing the speakers Dr. Emerson said that during the last few years the practice of medicine had enjoyed a revolutionary change, and that today the medical profession is seeking the confidence of the public. The real purpose of the doctors of today is the prevention of disease, and they have interested the public in many of the great problems of the prevention of disease, such as the anti-tuberculosis campaign, and now they are seeking to interest the public in the control of cancer.

Dr. Ernest L. Hunt was then introduced and gave a short talk on the cancer problem as it concerned Worcester. He said that cancer was a disease of middle life and carried off the adult at a time of life when he should be at the height of his efficiency.

Worcester lost by death from cancer during the year of 1921, 212 people. During this year the Worcester City Hospital has admitted to its wards 128 cases of cancer, of which number 70 were too far advanced to give any hope from treatment. Worcester is well equipped to cope with the situation if the patients will consult physicians early enough.

Dr. Frederick L. Hoffman (LL.D.), Director of the American Society for the Control of Cancer, and Consulting Statistician for the Prudential Life Insurance Company of America, gave the principal address of the evening. He said that during the time that he had been interested in the control of cancer he had seen the mortality from the disease rise steadily from 75,000 yearly in the U. S. to 90,000, and soon it would be 100,000 per year. Cancer is the only disease whose mortality is still growing. This is the story the world over. However, the liability to cancer is increasing faster than the death rate, and if it were possible to ascertain the number of cancer cases throughout the country and the number of successful operations and the number of lives saved, the evidence would most conclusively support the conviction that cancer control was being realized. Cancer is most common among the well to do and frequently among those who have never been sick a day in their lives. It is very rare among the Indians and among the

Chinese. The cause of cancer seems to lie in our modern way of living. Excess in weight is a more serious body abnormality than underweight. The disease is not contagious. No nurse has ever been known to contract the disease from her patient. Cancer can not be prevented, but death from cancer can be prevented.

After the lecture by Dr. Hoffman the two-reel film of the State Board of Health was shown, entitled "The Reward of Courage."

About 400 people attended the meeting, and the morning *Telegram* gave a column on the front page to the publicity end.

The Staff of the Worcester City Hospital has voted to form, at the request of the Surgeon General, a Reserve Hospital Unit, and have elected Dr. Frank George as commanding officer. The personnel of the Unit will be made up of members of the Staff of the Hospital and other physicians from the county.

THE HARVARD MEDICAL SOCIETY.

The first meeting of the Harvard Medical Society for 1922-1923 was held Tuesday evening, November 7, at the Peter Bent Brigham Hospital, Dr. Cushing presiding.

Dr. H. F. Newton presented a case of echinococcus cyst of the liver which had been operated upon by Dr. David Cheever. The striking feature of the case was that the enlarged cystic liver found at operation was considered by the staff, previous to operation, an enlarged spleen.

Dr. F. C. Shattuck remarked in discussion that an enlarged left lobe of the liver may be readily mistaken for an enlarged spleen, and that the diagnosis of echinococcus disease is often difficult.

Dr. S. B. Wolbach outlined the pathology of echinococcus disease and demonstrated the microscopic appearances of the characteristic daughter cysts with their hooklets.

Dr. John Donley of Providence gave a paper illustrating the reactionary point of view of John Riolan in regard to Harvey's discovery of the circulation and showed that even in the year 1650 it was impossible for a conservative clinician to check the progress of medical science in the hands of men with an experimental viewpoint.

In discussing this paper Dr. F. C. Shattuck wondered what the generation three hundred years from now would think of ourselves and wondered how many of us will be considered the Riolans of our own time and how many the Harveys.

Dr. Henry Richardson of New York reported his studies on metabolism which he has been recently conducting at the Russell Sage Institute. He demonstrated clearly how different the food actually oxidized is from that ingested

and offered the hope that in future more stress would be laid upon the food burned than upon the food eaten in the treatment of those cases of metabolism in which dietotherapy is of the greatest importance.

Dr. Richardson's paper was discussed by Dr. E. P. Joslin, who was appreciative of the significance of Dr. Richardson's experiments and the way in which they had been planned.

HARVARD MEDICAL SCHOOL APPOINTMENTS.

At a meeting of the President and Fellows of Harvard College in Boston, October 30, 1922, it was voted to make the following appointments for one year from September 1, 1922:

James Percy Baumberger, Teaching Fellow in Physiology; *Thomas Jefferson Duffield*, Instructor in Vital Statistics.

Anatomy—*Harold Valmore Hyde*, Assistant; *Carl Edward Johnson*, Assistant.

Bacteriology—*Walter Wendell Fray*, Austin Teaching Fellow; *Francis Browne Grinnell*, Assistant; *Harry Weiss*, Assistant.

Biological Chemistry—*M. R. Everett*, Teaching Fellow.

Medicine—*William Bradley Breed*, Assistant; *Henry Jackson, Jr.*, Assistant.

Orthopedic Surgery—*Robert Bayley Osgood*, Professor.

Pathology—*Trevor Goff Browne*, Assistant; *Robert Joseph Kirkwood*, Assistant; *Monroe Jacob Schlesinger*, Assistant; *Michael Joseph Conroy*, Instructor.

Pediatrics—*Edwin Theodore Wyman*, Instructor; *Bronson Crothers*, Assistant; *Robert Dudley Curtis*, Assistant; *Robert Ogden Dubois*, Assistant; *Paul Waldo Emerson*, Assistant; *Martin Joseph English*, Assistant; *Hyman Green*, Assistant; *Francis Browne Grinnell*, Assistant; *Arthur Bates Lyon*, Assistant; *Arthur Roland Newsom*, Assistant.

Preventive Medicine and Epidemiology—*Harold Everett Smiley*, *Charles Follen Folsom* Teaching Fellow.

Surgery—*William Justus Merle Scott*, *Arthur Tracy Cabot* Fellow.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

BABY HYGIENE ASSOCIATION.

A marked increase in the prevalence of the respiratory diseases has made October the heaviest month since May—2,567 new patients were admitted—an increase of 10% over those of the same period last year—and 25,765 visits made. By the prevalence of these diseases October shows the same peculiarity that marked the entire summer and fall.

There were 81 new cases of pneumonia; 112 of bronchitis; 16 of grip and 67 of other respiratory diseases, making more than twice as many as at this time a year ago.

Typhoid fever dropped to only 1 new case. All the other communicable diseases showed an increase: 45 new cases of measles; 34 of whooping cough; 11 of chicken pox and mumps; 2 new cases of infantile paralysis of recent onset.

In contrast to the increase in the other diseases was a striking drop in cancer and diseases of the heart.

The service at the time of delivery reached the highest figure in its history.

During the month of October 576 new babies came to the Baby Hygiene conference, and of these 336 were under three months of age. The total conference attendance for the month was 5,457.

As the winter with its stormy days comes on, the conference attendance will necessarily be less, but the visits in the homes for individual instruction to the mothers of 9,464 babies goes on continuously at the rate of about 10,400 per month.

Miscellany.

THE SUPPRESSION OF NEEDLESS NOISE.

The Commissioner of Health of Chicago has entered upon a campaign to eliminate unnecessary noise in Chicago, under authority conferred in Section 1425 of the Sanitary Code, which reads as follows:

"(Matters and Things Detrimental to Health)—No building, vehicle, structure, receptacle or thing used or to be used for any purpose whatever shall be made, used, kept, maintained or operated in the city, if the use, keeping, maintaining or operating of such building, vehicle, structure, receptacle or thing shall be the occasion of any nuisance, or detrimental to health."

It is claimed that careless truck and automobile drivers are the worst offenders.

PERTUSSIS VACCINE.

The Department of Health, City of New York, has appointed a committee to consider the value of whooping-cough vaccine. The committee has decided that a definite announcement of the preventive value of the vaccine should be deferred until results of the study which has been inaugurated by the Bureau of Laboratories shall have been tabulated. A preliminary statement relating to the therapeutic value of the vaccine has been published in the Bulletin for Nov. 11 and is as follows:

"As to the therapeutic value of pertussis

vaccine, it is the judgment of the Committee that it seems to be a symptomatic remedy which has appeared to have some value in abating the severity and frequency of the paroxysms. Whether the good results attributed to whooping-cough vaccine are due to a non-specific protein reaction is a question which cannot be answered at this time. In all events, the favorable judgment of the value of whooping-cough vaccine in symptomatic treatment of whooping-cough, which has been recorded by a number of clinicians of good standing, warrants us to encourage the continued trial of whooping-cough vaccine in the treatment of pertussis, especially since the treatment is harmless.

"The Committee is unanimous in its recommendations that whooping-cough, in view of its serious complications and sequelae, and its high mortality rate, should be regarded as a major communicable disease, and that parents and physicians should be instructed and urged to recognize that strict quarantine is as essential in this disease as in the other major communicable diseases. Whenever the maintenance of strict quarantine is not possible, a patient suffering from this disease should be sent at once to one of the hospitals of the Department of Health, so as to remove a source of infection that may be responsible for the spread of the disease.

"J. J. BLUMENTHAL, M.D., Act. Director, Bureau of Child Hygiene.

"ROBERT J. WILSON, M.D., Director, Bureau of Hospitals.

"L. H. HARRIS, M.D., Director, Bureau of Preventable Diseases.

"WM. H. PARK, M.D., Director, Bureau of Laboratories.

Committee."

AMERICAN RELIEF ADMINISTRATION.

Moscow.—Dr. John E. Toole, Branford, Conn., district physician of the American Relief Administration at Saratov, pays a high tribute to the Russian doctors of that region, who until the arrival of American medical supplies waged a hopeless war against disease under almost unbelievably hard conditions.

"Medical personnel," says Dr. Toole in his latest report, "is usually intelligent and enthusiastic. They have borne up under unimaginable difficulties. Without anaesthetics, ligature material and clean dressing material, they have performed major operations with excellent results considering the difficulties. They have been without the most essential drugs many times and have reverted to various herbs of recognized therapeutic value. They have been at times half starved themselves, and there are few doctors who have not had the three varieties of typhus. Practically all of the doc-

tor-inspectors whom I sent into malaria districts have contracted malaria. Many physicians died during the typhus epidemic last spring, but they are heroic and must be deemed a saving feature of demoralized Russia. Their number seems adequate and the distribution has been more equalized during the past few months, and districts where there was no doctor last spring are now supplied with one.

"The poverty and inability of patients to pay for physicians' services has made the finances of the Russian doctors especially precarious and the majority of them are living in extreme poverty."

Three medical specialists not far from Moscow city, who wish to carry on the duties of their professions unhampered by the worry of where the next meal is coming from for their families this winter, have petitioned the American Relief Administration to extend them credit for one year for food packages provided them monthly.

Too proud to ask for charity and yet anxious, apparently, to conduct their work without the burden of worry, they have made a business proposition to the A. R. A. in which they offer to pay at the end of the year the cost and expenses of forwarding American food packages. They stipulate that if at the end of the year unforeseen circumstances prevent payment they will ask for an extension of another year in which to make good.

To prove their standing and guarantee the debt, they describe in detail the property they own and the members of their family. One is an authority on pediatrics, another head of an eye disease hospital, and a third a director of a children's home. One has a wife and two daughters and a son. Another has a wife and three small sons, while the third has a wife, son and two daughters.

THE LIABILITY OF PHYSICIANS UNDER THE NEW YORK SANITARY CODE.

The New York City Sanitary Code has the following section:

Section 100. Acts tending to promote spread of disease prohibited.—No person shall by any exposure of any individual sick of any infectious disease, or of the body of such person, or by any negligent act connected therewith, or in respect of the care or custody thereof, or by a needless exposure of himself, cause, contribute to, or promote, the spread of disease from any such person, or from any dead body. (S. C. Sec. 143.)

Under this provision the Health Department of the City of New York has brought action against a physician because he directed a mother to take her child to the office of the Department

of Health after a diagnosis of diphtheria had been made.

The doctor sent the following note with the mother:

"Baby S. has a positive culture, surely laryngeal. Mother of baby does not believe. Kindly inject."

The *Bulletin* publishes the following comment:

In the course of the child's travels through the streets and in public conveyances, to the Department, and within the office building of the latter as well, a number of children were obviously imperiled by contact with this diphtheria patient. It would seem that a physician who has received instruction as to the mode of transmission of communicable diseases, would have seen at once that the action which this mother was counselled to take constituted a grave source of danger to others, and was in conflict with elementary medical teachings. He certainly showed a serious lack of judgment.

DIPHTHERIA AND THE SCHICK TEST IN INDIANA UNIVERSITY.

BLOOMINGTON, IND., October.—Modern medical science works wonders. The recently discovered Schick test is largely responsible for the stamping out within 19 days of a serious epidemic of diphtheria among 2900 students attending Indiana University. The test consisted of a hypodermic injection in the arm of a minute quantity of diphtheria toxin, which determined by the resulting color of the skin the immunity or susceptibility to diphtheria of the subject. More than 1100 tests were given and the majority of the 490 students showing susceptibility took the preventative antitoxin. Vigorous quarantine of students exposed to the disease until they could be examined, together with prompt isolation of cases for treatment in the university's private hospital, contributed to the early wiping out of the epidemic. Among the 85 cases not a single serious illness developed. No ill effects resulted from the use of the antitoxin.

U. S. DEPARTMENT OF LABOR. CHILDREN'S BUREAU.

A comprehensive directory of 861 local child health agencies in the United States has just been issued by the U. S. Department of Labor through the Children's Bureau. These agencies are actively engaged in the promotion of child health through maternity care, infant care, and the care of the child of preschool age. They serve States, counties, and urban areas of 10,000

or more inhabitants. The material was obtained by means of a questionnaire which called for the name of the organization, the address, the name of the executive, the number of paid and volunteer workers, and the scope of the work.

For convenience in consultation, the directory includes a list of agencies arranged by State and city; an alphabetical list by States, of agencies serving State-wide, county, and urban areas; and a classification of agencies according to whether they provide maternity care, infant care, and the care of children of preschool age.

"THINK I'M STRONG ENOUGH TO WORK, DOCTOR?"

Forty-three thousand boys and girls ask this question each year. The law requires every child between 14 and 16 years of age who goes to work to have a thorough physical examination. Yet how often a child physically unfit for work, is admitted to industry! The Massachusetts Department of Public Health, with the assistance of the Massachusetts Child Labor Committee, published an answer to the youngster's question. The pamphlet, "That Depends," is a plea for more careful consideration of children going into industry—a plea for health certification backed by thorough medical examination. As the familiar saying goes "an ounce of prevention is worth a pound of cure," the pamphlet suggests a short cut to prevention—or at least a straight road. It is distributed free by the Health Department to anyone in this State.

SMALLPOX IN NEW YORK STATE.

There have been about one hundred and fifty cases of smallpox in New York State outside of the City of New York this year.

Two recent outbreaks, one in the western part of the State and the other on the St. Regis Reservation, have caused anxiety on the part of the Public Health Department.

Efforts are being made to induce the people to seek protection through vaccination. Physicians and local health officers have been appealed to to cooperate.

CONNECTICUT HEALTH STATE COMMISSIONER.

THE Hartford Times announces the retirement of Dr. John T. Black, State Health Commissioner, who will associate himself with the Aetna Life Insurance Company.

The Governor has appointed Dr. Stanley H. Osborn as Commissioner of Health. Dr. Osborn has been epidemiologist in the Connecticut

Bureau of Preventable Diseases since 1920. He is a graduate of Tufts Medical College and the Harvard Graduate School of Medicine. He served overseas during the War.

Dr. Black was appointed Health Commissioner July 1, 1917. He has endorsed Dr. Osborn for the position made vacant by his resignation. Under Dr. Black the health conditions in Connecticut have steadily improved.

RÉSUMÉ OF COMMUNICABLE DISEASES.

OCTOBER, 1922.

GENERAL PREVALENCE.

Diseases showing a marked increase over the previous month are as follows: chicken pox, diphtheria, measles, mumps, lobar pneumonia, scarlet fever.

The more prevalent diseases were reported as follows:

	October 1922	September 1922	October 1921
Chicken pox.....	199	53	248
Diphtheria.....	1026	578	887
Measles.....	686	269	312
Mumps.....	190	67	139
Pneumonia, lobar..	237	86	191
Scarlet fever.....	554	281	431
Whooping cough...	634	637	156
Gonorrhea.....	480	493	434
Syphilis.....	137	179	170

RARE DISEASES.

Anterior poliomyelitis was reported from Barnstable, 1; Boston, 6; Braintree, 1; Brookline, 1; Chilmark, 1; Dennis, 3; Everett, 1; Fairhaven, 1; Falmouth, 1; Grafton, 1; Lynn, 1; Malden, 1; New Bedford, 1; Randolph, 1; Rookport, 2; Saugus, 1; Wakefield, 1; Webster, 1; Weymouth, 1; Winohendon, 1; Worcester, 1; total, 29. (There were 63 cases reported last month and 27 for the corresponding month last year.)

Dog-bite requiring anti-rabic treatment was reported from Beverly, 1; Boston, 3; Great Barrington, 3; Lowell, 3; Medford, 3; Stockbridge, 3; Tewksbury (State Infirmary), 1; Winthrop, 1; total 18.

Dysentery was reported from Boston, 1.

Encephalitis lethargica was reported from Gloucester, 1; Lawrence 1; Longmeadow, 1; Lynn, 2; Newburyport, 1; Newton, 1; Waltham, 1; total, 8.

Epidemic cerebrospinal meningitis was reported from Fall River, 2; Lawrence, 1; Mansfield, 1; Newton, 1; Somerville, 1; Worcester, 1; total, 7.

Hookworm was reported from Boston, 2.

Malaria was reported from Boston, 3; New Bedford, 1; Pittsfield, 1; Uxbridge, 1, total, 6.

Pellagra was reported from Boston, 1; Fall River, 1; Wellesley, 1; total, 3.

Septic sore throat was reported from Andover, 1; Boston, 2; Harwich, 7; New Bedford, 2; total, 12.

Tetanus was reported from Boston, 4; Dartmouth, 1; Lowell, 1; Milford, 1; total, 7.

Trachoma was reported from Belmont, 1; Boston, 1; Lawrence, 1; Newton, 1; Medway, 1; Woburn, 1; total, 6.

Trichinosis was reported from Boston, 3; Brookline, 1; total, 4.

IMPORTANT ANNOUNCEMENT.

The medical profession will be interested in the announcement that the Abbott Laboratories of Chicago have purchased the Dermatological Research Laboratories of Philadelphia. This is an advance step for the Abbott Laboratories, and will give them deserved recognition among the leading manufacturers of medicinal products.

It will be remembered that the Dermatological Research Laboratories were the first in the United States to produce Arsphenamine during the war, where there was such a scarcity of this article; and these Laboratories became well known to the medical profession for their patriotic attitude in developing and manufacturing medicinal preparations in this country. By this purchase of the "DRI" products, the Abbott Laboratories inherited their prestige.

The Abbott Laboratories acquired control of the Dermatological Research Laboratories on November 1st, and are continuing to operate them in Philadelphia under the direction of Dr. Geo. W. Raiziss, head of the Department of Chemistry, and his corps of specially trained assistants. Orders for "DRI" products will be promptly filled from the Philadelphia Laboratories or from their branches or distributors.

THE NEW HOME OF HYNSON, WESTCOTT & DUNNING OF BALTIMORE.

This national drug firm has just erected and occupied its own building at Charles and Chase Streets, Baltimore. The building is artistic in appearance and adapted to accommodate the several departments of their rapidly developing business, which began in a small way in 1889, but has now grown to a million a year, with an organization of 125 people. Their unique sales department alone comprises 19 men, who visit physicians in all parts of the United States, but do not sell goods. Thirty-five of their products have been accepted by the Council. None of

their preparations are offered direct to the public, but are introduced to the medical profession for the use of physicians and their patients. Mr. H. P. Hynson, one of the founders, died in 1921, but their growing business has now been established in new quarters under the immediate supervision of Messrs. James W. Westcott and H. A. B. Dunning (the latter being the active administrator), with a highly trained force, equipped to meet promptly the demands of the medical profession anywhere and at all times.

Obituaries.

WALTER BREWSTER PLATT, M.D.

Walter B. Platt, hospital superintendent and pediatricist, was born at Waterbury, Connecticut, Dec. 20, 1853, and died of heart disease at his home in Baltimore Oct. 30, 1922. He was the son of Gideon Lucien and Caroline (Tudor) Platt. His father, a physician and surgeon, and president of the Connecticut State Medical Society, was a man of great energy, rectitude, self-control and kindness. Richard Platt, the founder of the Platt family, came from Hertfordshire, England, in 1638, and settled in Milford, Connecticut. Other ancestors of note were: Thomas Buckingham, who emigrated from England in 1638, to New Haven, Connecticut; Owen Tudor, who went to Massachusetts from Wales between 1620 and 1636; Deacon William Gaylord, who emigrated from England in 1630; Joseph Loomis, who came from England in 1638; Elder William Brewster (pastor of the Pilgrims on the *Mayflower*), in 1620; Doctor Elihu Tudor, surgeon (1733-1826), who was with General Wolfe of the British army at the capture of Quebec and Havana.

When Platt was a boy, he lived in a small town, where, he said, "among other duties I was made to take entire care of a horse for a time," a discipline which he thought most valuable. He early showed a love for chemistry, zoölogy and botany, and in reading found most helpful works in natural science, such as those of Huxley, Herbert Spencer, and Sir John Lubbock. Platt received his early education in the public schools and at Williston Seminary, Easthampton, Massachusetts. He then entered Yale University, and received the degree of Ph.D. in 1874. From that date until 1879 he studied at the Harvard Medical School, graduating with the degree of M.D. in the latter year. Then he pursued post-graduate courses in medicine at the Universities of Berlin, Vienna and Heidelberg and obtained membership in the Royal College of Surgeons of England, being made a fellow of that college, by examination, in 1883.

In the year 1872 Dr. Platt was collector of

specimens of natural history in the Yellowstone expedition of the United States Geological Survey. In 1878 he was both house surgeon and assistant to the superintendent at the Boston City Hospital. From 1884 to 1889 he was surgeon to the Bay View Asylum, Baltimore, and during the same years was demonstrator of surgery at the University of Maryland. First appointed in 1886, he was superintendent and surgeon of the Robert Garrett Hospital for Children. In 1884 he published a translation with notes, of Ultzman's "Pyuria." Among his memberships were the Delta Psi Fraternity, the University Club, the Reform League, the Civil Service Reform Club, the American Economic Association, the American Association for the Advancement of Science, the National Economic League. Of the numerous professional societies were the American Medical Association and the Medical and Chirurgical Faculty of Maryland. For many years he was a member of the council and honorary surgeon to the Society of Colonial Wars. In politics Dr. Platt was identified with the Republican party, though he twice voted for Cleveland. He was a vestryman in St. John's Episcopal Church, Kingsville, an office he held from 1903. For exercise and recreation he turned to camping, riding, rowing and traveling by sea to tropical countries. He said "I am a strong believer in moderate indulgence in athletic exercises, but opposed to violent competitive games. I think their influence is not physically good on those who take part in them."

On December 4, 1889, Dr. Platt married Mary P. Perine of Baltimore, daughter of the late Glenn Perine and niece of Mrs. H. Irvine Keyser. They had four children: Washington, David, Mary (now Mrs. C. C. Hall), and Lucien, who died from influenza while in the Engineers' Training Camp during the World War.

Dr. Platt was a man of most upright character, greatly respected by a large group of friends and greatly beloved by a long list of devoted patients. To the management of the Robert Garrett Hospital, through the many years of his service, he gave his time and thought without stint, and the great success of the work of this institution has been due in very large measure to his good judgment and continued interest. Once when asked to express his advice to a young man beginning his career he offered this suggestion: "associate early with men of high ideals and successful achievement. Take regular, moderate physical exercise. Get your education at the best schools and universities. Concentrate professional energy. Keep up general culture through life. Resolve to entertain no ideals or beliefs except such as are sound and ultimately useful to mankind."

[H. B. J.]

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Cordell's "History of The Medical and Chirurgical Faculty of Maryland."
Genealogies of The Society of Colonial Wars in the State of Maryland.

GEORGE PRENTISS MORGAN.

Word has been received of the death, November 8, 1922, at Dover, New Hampshire, of Dr. George P. Morgan of that city, at the age of 61.

He was born at New Gloucester, Maine, June 22, 1861, graduated in the medical class of 1888 at Bowdoin College, and settled in Dover the following year. In 1892 he joined the New Hampshire Medical Society, and he also had membership in the Maine Medical Association and the American Medical Association. Much of his practice was in the domain of surgery, he being surgeon-in-chief to the Wentworth Hospital.

Correspondence.

IN RE ZONITE AD., CANCER WEEK AND N. H. CHIROPRACTIC.

November 9, 1922.

Mr. Editor:

(1) A fine editorial, but unless active measures are taken, only pop-gun work; chiropractic ditto.

(2) Two powerful causes for the mortality—Christian (?) Science (?) and Lydia Pinkham—the former used by fanatics; the latter by the ignorant and gullible — backed by the Boston Herald and a thousand other particeps criminorum. Three deaths (two of brides) from latter, and one from former cause (turn these numbers right around, please) recently in my own work—one, a refined and rich woman who presented a case so horrible its details would make you shudder; ten hours after being called out of town "only to make a diagnosis," death ensued.

This morning's mail brings me a letter from Dr. W. A. Evans (*Chicago Tribune-Boston Herald*) corroborating my own experiences!

Fraternally,
James Brown Thornton.

THE SCHICK TEST IN NEWTON.

November 8, 1922.

Mr. Editor:

Eighteen months have elapsed since the Newton Board of Health offered the Schick test and T. A. immunization of susceptibles to the children in the public schools and such others as might desire it, and it may not be out of place to publish our results.

During April, May and June, 1921, 1000 persons were tested and subsequently 200 more were done, making a total of 1200 persons, all but 50 being under 16 years of age, on our lists.

Of this number 258 were found to be naturally immune and 50 others were immunized and later shown, by test, to have acquired immunity, so that we have on our lists 308 persons who are immune and 892 known to be susceptible, but who have neglected or refused to be immunized.

These two groups have been under observation for a period of 16 months and during that time each case of diphtheria, as reported, has been checked against our lists with the result that none of the 308 immunes have developed diphtheria, while of the 892 susceptibles, 10 have been reported as having diphtheria, not only bacteriological but clinical.

Our number of immunes is as yet too small to have had any effect in reducing the number of cases of diphtheria reported, but we believe that we have shown that persons showing a negative Schick, whether due to natural or artificial immunity, are protected from diphtheria and we intend to continue our work in the hope of being able to show at some future period, that we have increased our immune population and so reduced our cases of diphtheria.

FRANCIS GEO. CURTIS, M.D.
Chairman, Newton Board of Health.

THE FIRST MEDICAL COLLEGE HOSPITAL IN THE UNITED STATES.

Mr. Editor:

In your issue for October 26th, 1922, page 600, I notice that Dr. Thomas S. Brown mentions the fact that in 1893 the University of Pennsylvania and the Johns Hopkins Hospital had their own hospitals, which were utilized for the education of medical students. The inference was that no other medical school had its own hospital.

Evidently, the writer is not aware of the fact that the Jefferson College Hospital was opened on September 17th, 1877—sixteen years earlier than the date which is given above. Moreover, as long ago as 1860, when I entered the Jefferson as a student, we had a small hospital of ten or twelve beds in two rooms, one for men and one for women and children.

The writer raises also the question of any harm arising to patients from ward classes.

I venture to make the following extracts from my address as President of the Sixth Congress of American Physicians and Surgeons, held in Washington on May 12th, 1903:—

"I have lived through the period of the establishment of hospitals in many of the smaller cities and towns, and in some cases even villages in this country, for it was a rare thing in my early professional life for any except the larger cities to have hospitals. The moment that a hospital is established with its medical and surgical staff, that moment a new era has dawned on the community in which the hospital is established. More careful methods are introduced, greater cleanliness is observed, hygienic conditions are bettered, laboratory methods are inevitably introduced in time. . . . It is sometimes objected by those who are not familiar with the actual facts that this method of actual bedside instruction does harm to the sick. I speak after an experience of nearly forty years as a surgeon to a half dozen hospitals and can confidently say that I have never known a single patient injured or his chances of recovery lessened by such teaching. . . .

Who will be the least slovenly and careless in his duties: he who prescribes in the solitude of the sick chamber, and operates with two or three assistants only, or he whose every movement is eagerly watched by hundreds of eyes, alert to detect every false step, the omission of an important clinical or laboratory investigation, the neglect of the careful examination of the back as well as the front of the chest, the failure to detect any important physical sign or symptom? Who will be most certain to keep up with the progress of medical science: he who works alone with no one to discover his ignorance, or he who is surrounded by a lot of bright young fellows who have read the last *Lancet* or the newest *Annals of Surgery* and can trip him up if he is

not abreast of the times? I always feel at the Jefferson as if I were on the run with a pack of lively dogs at my heels. I cannot afford to have the youngsters familiar with operations, means of investigations, or newer methods of treatment of which I am ignorant. I must perforce study, read, catalogue, and remember, or give place to others who will. Students are the best whip and spur I know."

Yours very truly,

W. W. KEEN.

DISEASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING NOVEMBER 11, 1922.

Disease.	No. of Cases.	Disease.	No. of Cases.
Anterior poliomyelitis.....	6	Pneumonia, lobar....	62
Chicken-pox.....	75	Scarlet fever.....	120
Diphtheria.....	256	Syphilis.....	52
Encephalitis lethargica.....	2	Suppurative conjunctivitis.....	9
Epidemic cerebrospinal meningitis.....	3	Tetanus.....	1
German measles.....	3	Trachoma.....	1
Gonorrhea.....	109	Tuberculosis, pulmonary.....	85
Influenza.....	14	Tuberculosis, other forms.....	7
Measles.....	168	Typhoid.....	17
Mumps.....	70	Whooping cough....	228
Ophthalmia neonatorum.....	15		

BOSTON ASSOCIATION OF CARDIAC CLINICS.

SCHEDULE OF MEETINGS.

The first meeting was held Nov. 16 at the Massachusetts General Hospital. The subject discussed was "Syphilis of Heart and Aorta," by Dr. Walter P. Anderson, Presbyterian Hospital, New York City. Dr. William D. Reid, Boston Dispensary and Boston City Hospital. Discussion opened by Dr. William D. Smith, Massachusetts General Hospital.

Succeeding meetings will be held Thursday, January 18, 1923, at 8:15 P.M. Boston Lying-In Hospital (new Hospital). Pregnancy and Heart Disease.

Drs. William B. Breed and Paul D. White, Massachusetts General Hospital. Dr. Burton E. Hamilton, Boston City Hospital and Boston Lying-In Hospital.

Thursday, March 15, 1923, at 8:15 P.M. Boston City Hospital. Prevention and Relief of Heart Failure.

Rheumatism and Chorea and Heart Disease. Congenital Heart Disease. Thursday, May 17, 1923, at 8:15 P.M. Children's Hospital.

PACIFIC NORTHWEST MEDICAL ASSOCIATION.

The September issue of Northwest Medicine contains the minutes of the first scientific session of the Pacific Northwest Medical Association, held in Spokane, Washington, July 6 to 8, 1922. Among the papers read and published in this issue are three by Dr. Henry A. Christian of Boston: "Certain Phases of the Chronic Nephritis Problem," "Hemolytic Jaundice, Pernicious Anemia, Akaptonuria, and Orthostatic Albuminuria," and "Digitalis and Quinidine in the Treatment of Certain Types of Chronic Cardiac Disease."

Dr. W. B. Cannon, of Boston, spoke on "New Evidence Regarding the Nervous Control of the Thyroid Gland."

PUBLIC HEALTH LECTURERS FOR THE YEAR 1922.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past three years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Penteado Bill, M.D., Doctor of Public Health. Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist, Instructor in Bacteriology and Pathology, Tufts College Medical School. "Methods of Technique in Collecting Specimens."

Walter E. Fernald, M.D., Superintendent, Massachusetts Hospital for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital. Specialty: Specific Diagnosis and Treatment of Pneumonia.

William C. Woodward, M.D., Ex-Health Commissioner, City of Boston.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full time School Health Officer.

Secretaries of District Medical Societies writing to ask for these lecturers will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating

unnecessary correspondence. Please address communications to the Secretary of the Committee, Annie Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

[Note: The Committee on Public Health feels that this notice may have escaped attention, for few applications have been received. Each lecturer is an authority and would present his subject in an interesting and instructive manner.]

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Hyannis,—February 2, 1923. (Annual Meeting)—May 4, 1923.

Bristol South District:—Fall River,—May 3, 1923.

Essex North District:—Haverhill, (Semi-Annual Meeting)—Jan. 3, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Essex South District Medical Society meets Wednesday, December 13th, at Beverly Hospital, Beverly, 6 p.m. Speakers: Dr. W. P. Bowers, Managing Editor *Boston Medical and Surgical Journal*; Dr. John D. Adams, Boston; Dr. P. P. Johnson, Beverly. R. E. Stone, Secretary.

Suffolk District:—December 27, 1922; January 31, 1923; February 28, 1923; March 28, 1923; Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Loog, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District:—Meetings: Wednesday, January 31, 1923.

Middlesex East District:—Jan. 24, 1923. The Nursing Problem. Speaker to be announced later.

March 21, 1923. Mental Factors in Childhood. Paper by Dr. William Healy.

April 18, 1923. Interpretation of Laboratory Findings. Papers by Dr. E. G. Crabtree and one to be announced later.

May 9, 1923. Annual Meeting.

All meetings except the annual meeting will be held at the Harvard Club in Boston. A. E. Small, Secretary.

Worcester District meetings in Worcester, Dec. 13, 1922, Jan. 10, Feb. 14, March 14, April 11 and May 9, 1923, the last named date being the annual meeting.

Massachusetts Society of Examining Physicians.—Meeting and dinner at Copley-Plaza Hotel, Monday, November 27, 6:30 p.m. Symposium on "Back Disabilities." "The Diagnosis of Back Defects," Dr. Lloyd T. Brown; lantern slides. "Backache in Women with Reference to Industrial Conditions," Dr. Stephen Rushmore. "The X-Ray Standpoint," Dr. A. W. George. Discussion opened by Dr. Francis D. Donoghue. Wm. Pearce Coues, M.D., President, Hilbert F. Day, M.D., Secretary.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

December, 1922. New England Dermatological Society Meeting, Wednesday, December 13, 1922, at 3:30 p.m., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary.

December 26-30, 1922. American Association for Advancement of Science meets in Boston.

January, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston, W. H. Allen, Mansfield, Mass., Secretary.

January, 1923.—Boston Association of Cardiac Clinics. Meeting January 18, 1923, at 8:15 p.m. Boston Lying-In Hospital (New Hospital). Subject: Pregnancy and Heart Disease.

February, 1923. New England Dermatological Society Meeting, February 14, 1923, at 8:30 p.m., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

March, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary.

March, 1923.—Boston Association of Cardiac Clinics. Meeting March 15, 1923, at 8:15 p.m. Boston City Hospital. Subject: Prevention and Relief of Heart Failure.

April, 1923. New England Dermatological Society Meeting, April 11, 1923, at 3:30 p.m., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston, W. H. Allen, Mansfield, Mass., Secretary.

May, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided) American Pediatric Society Meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind., D. C. Carpenter, Secretary.

May, 1923.—Boston Association of Cardiac Clinics. Meeting May 17, 1923, at 8:15 p.m. Children's Hospital. Subject: Rheumatism and Chorea and Heart Disease.

June, 1923. American Medical Association, San Francisco, June 25-29, 1923. Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923. Massachusetts Association of Boards of Health, July 26, Nantasket, W. H. Allen, Mansfield, Mass., Secretary.

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Original Articles.

INJURIES TO THE CRUCIAL LIGAMENTS AND AVULSION OF THE TIBIAL SPINE.*

BY CHARLES F. PAINTER, M.D., BOSTON.

I should hardly have had the temerity to bring up the subject announced as the title of this paper merely for the sake of recording four hitherto unreported instances of these lesions, were it not a fact that they are now the not infrequent subject of operative interference because the knee-joint is no longer a *terra incognita* to the operating surgeon. I have been reminded as I have been thinking of this matter that the surgical technique making possible any attempt to deal with these lesions, where necessary by operative methods, has had its origin and development within the span of years during which I have been in practice.

From the latter part of 1894 to the early part of 1896, I was a surgical interne at the Massachusetts General Hospital. During the entire sixteen months of my service, I remember only three or four arthrotomies of the knee performed for non-septic or non-toxic conditions; i.e., clean joint surgery. Three of these were for "joint mice" and one for semilunar cartilage disloca-

tion. Surgeons who were getting quite bold and confident of success in practicing aseptic surgery within the abdominal cavity were very much afraid of the knee joint. The pall of a then recent operative catastrophe hung heavily over surgical practice so far as the knee-joint was concerned. One of the country's foremost surgeons had not long before operated upon a prominent steel magnate of Cleveland, who came on to New York to secure the benefit of his skill in removing a torn semilunar. The wound became infected, and in order to save life a thigh amputation was performed. It was some time before this experience was forgotten because of the prominence of the principals. I recall that my visiting surgeon would, during my period of senior internship, take no chances in opening a knee-joint for a "floating cartilage." If it could be felt easily through the skin and was always readily coaxed from its hiding place, he was willing to cut down upon one when he was able to grasp it between his fingers through the skin, but he could not be persuaded to open the joint before isolating the "mouse" in this way.

Another, with his customary resourcefulness, at about this same time, used a sterilized hat pin with which to transfix the "mouse" after it had been located and before opening the capsule of the joint. It was then easy enough to cut down upon the slippery fragment without fear of its beating a hasty retreat during the process of dissection. This attitude was fairly

*Read before the Boston Orthopaedic Club, April 21, 1922.

representative of that of the entire surgical profession of Boston in 1896.

During the next 13 years, the first three of which I presume it is fair to assume that there was not much, if any, knee-joint surgery being done upon the service, I was helping to develop an adult orthopedic clinic. I think that the report I made in 1910, in conjunction with a colleague, of the results of 204 arthrotomies performed on my service, must have been largely confined to the decade from 1900 to 1910. All cases of arthrotomy were included and the mortality was gratifyingly low, for among that number were a few joints seriously infected before entrance to the hospital wards. It would therefore appear that between 1899 and 1910 a very considerable advance had been made in the technique of knee-joint surgery, an advance which had paved the way leading up to the present attitude of operators who hesitate no more than does the abdominal surgeon to explore, sometimes merely for the sake of satisfying curiosity, and not at all, when there appears some definite pathologic or abnormal anatomic problem to be solved.

This particular group of cases is of course concerned only with abnormal anatomic situations, and this fact makes it desirable to consider what the normal anatomy of the structures involved really is.

We are not, I am sure, sufficiently impressed with the extraordinary stability of the knee-joint mechanism and with the way in which that stability is secured. When one considers the numerous functions to be performed, the power that must be transmitted with the leg in all sorts of positions and under all sorts of strains and stresses, during any and all of which the joint motion must not be blocked or interfered with in any way, together with the extremely slender character of many of the structures by which great resistance must be offered and force applied, we are compelled to marvel at the perfection of design and extraordinary effectiveness of the machine. It is the nicety of adjustment of enveloping capsule and interlocking interarticular ligaments to a mathematically accurate adaptation of the curved articulating cartilages of femoral and tibial surfaces which lays the foundation for this remarkable stability in nearly all positions of the lower leg with reference to the thigh. All this would be of no avail were not the fibrous capsule of the joint made up of the terminal expansions of the powerful thigh muscles, whose actions are so co-ordinated in effecting the two motions of which the knee-joint is capable that the capsule is made taut by the synchronous contraction of these various muscles to just the right extent and at just the right time throughout the full range of motion, from complete extension through to full flexion. It is therefore the fibrous capsule with its various muscular reinforcements, the semilunar cartilages, the

crucial ligaments, and perhaps more than all else the accurate curving of the femoral condyles, by virtue of which they are compelled to maintain such relations to the shallow cup represented by the tibial articular cartilage, that, given a normal muscular co-ordination and tone, the relation of tibia to femur is always that of greatest stability no matter what the angulation at the knee may be; all these factors enter into the stabilization of the knee-joint.

There are really only two situations under which this stabilization may be disrupted. In the first place by violence, of such a nature as to crush down all anatomical structures and, second, a momentary lapse in the synchronous protective activity of the supporting musculature. I will not weary you with a narration of the descriptive anatomy of the knee-joint. It is probably familiar to you all, and if not has necessarily often to be reviewed. I shall content myself with this attempt to give the above composite picture of the results of the normal functioning of these opposed anatomic factors.

Before discussing the subject from the standpoint of the reported cases in the literature, I will give a brief account of my own personal experience with the conditions alluded to in the title.

CASE I. The first patient in whom I recognized a crucial ligament rupture was a medico-legal case which I saw eight years ago. The patient was a young man of 30 who dropped six stories in an elevator. The automatic safety device brought the car to a sudden stop after a six-story drop. There was a capacity load in the car, all of whom were thrown toward the top of the car, which many of them struck, and the patient was buried under several men, his legs being flexed and the lower leg firmly wedged, at the same time that his body was bent over laterally. Everything seemed to be torn apart in his knee; he suffered excruciating pain, could not walk, and there was a rapid accumulation of fluid in the joint. He was taken care of by his local doctor after receiving "first aid" at the Haymarket Square Hospital.

When I saw him some three months after the accident he was still unable to walk with any comfort, and the leg was very unstable. He used a crutch in walking. On examination the leg could not be completely extended and there was hypermobility in two directions. The tibia could be pushed forward upon the femoral condyles and there was more abduction than seemed reasonable, even when it was impossible to completely extend. There was no thickening about the head of the tibia or capsular infiltration. The atrophy was not notable and there were no indications of any inflammatory disturbance. A "cage" splint was applied, with which he found the stability of the joint was greatly increased. He was able to give up his crutch, and in the course of about a year he was nearly

normal as to the function of the knee, though he tired easily.

In this case it would seem that the anterior crucial and the internal lateral ligament was torn. The last time I saw him, more than a year after the accident, there was still a little hypermobility, especially in abduction, and at the same time extension was complete.

CASE II. This case was another crucial ligament tear. The patient was an aviator, 39 years of age. He had met with no serious injury until after the armistice, when he fell out of a window on the first floor of the Barracks at Pensacola, striking heavily on his side with his flexed leg beneath him. He was a tall, powerfully built man, weighing around 180 lbs. There was great pain, complete disability and a large effusion in the joint. He was taken care of immediately at the Naval Hospital there and various treatments were tried, all of which failed to give him a usable leg after nearly two years of treatment. He was admitted to the Naval Hospital in Chelsea, where I saw him. He was walking with a cane, having considerable limp, but not much pain unless he used the leg too much. He was entirely disqualified for duty and was seeking retirement.

On examination the leg was capable of full extension and about twenty degrees short of a right angle in flexion. Anterior displacement of the tibia upon the femur was possible with some slight abduction, even with the leg in full extension. The anterior crucial was the ligament damaged and in this case little harm had been done to the lateral ligament. As the Government was unwilling to retire him until everything had been done that seemed reasonable, I decided to try to repair the torn crucial.

The joint was opened through the median-patellar incision and it was plainly apparent that the anterior crucial had been torn across leaving a very short stump high up in the intercondylar notch, while the longer portion was attached to the tibial spine. The ends were frayed out and one was impressed with the fragile character of the ligaments themselves. Even the posterior, which was not torn at all, seemed singularly inadequate to withstand the strain to which it would seem it must be frequently subject. It was with considerable difficulty, on account of the shortness of the portion of the ligament attached within the intercondylar notch, that silk sutures were passed through the ligament at each of its torn ends. It was not possible to accurately approximate these ends so that the suture had to be regarded as a trellis across which the connective tissue might grow. The wound was closed in the usual manner; kangaroo tendon sutures were passed through the patella, a step which is often omitted as the approximation is usually sufficiently good. His convalescence was uneventful. He was not permitted to have any motion tried, even

passively, for six weeks, and then very gently. It was fully four months before he bore weight on the leg without support other than that afforded by a "cage" splint. At that time he had about right angle flexion, full extension and a fairly stable joint. Since his discharge from the Naval Hospital, which has been followed by his retirement from the service, I have not seen him, but he reports himself as having a serviceable leg.

The length of time which elapsed between the injury and the suture of the ligament is the matter of chief significance in this case, together with the fact that the sutures could not be drawn tight enough to pull the ends of the ligament in contact and yet the procedure converted his condition from one of incapacity so far as any use of the leg was concerned to one of comparative usefulness and activity.

CASE III. Mrs. B., a working woman of 45 years, stepped backward off a porch, a distance of about 3 feet, with a basket of wet clothes in her hands, which she was about to hang upon a line. For a few seconds during the maneuver one foot was on the porch and the other on the ground. As the position was not a dignified one long to maintain, she toppled over to one side, down an embankment, with the result that she was picked up and carried into her house in great pain, referred to the right knee and a rapidly developing effusion. She was kept in bed with ice bags and pillow splint for about two weeks, at the end of which time I saw her, and it was then possible to handle the leg in such manner as to come to some conclusion as to what might have happened within the joint. There was considerable effusion; the leg was in a slightly flexed position and could not be fully extended. There was great tenderness over the joint, particularly about the internal aspect, and attempts to secure motion were very painful. It was possible to slide the tibia forward on the femur and to slip it more posteriorly than it was held, though this last was not noted until she was anesthetized for operation. There was no possible abduction of the leg upon the thigh. The joint was opened through the median-patellar incision. A moderate, blood-tinged effusion was found in the joint and the crucials were both torn. The anterior was frayed out, but the ends were not widely separated. The posterior was not torn all the way through; a thin band seemed to establish a bridge between the main portions. These were both sutured as well as I could, somewhat handicapped as I was by lack of needles of a proper curve. It was the first case of the kind I had ever operated and was done as a sort of an emergency while I was away from home and on a vacation, and I felt it was an unpromising one in every way. Though I was sure I had placed the sutures through the structures that I wished to hold together, I could not see how they were

likely to hold or furnish a basis for anything to develop that would hold. I did not see her for a year. She had been four or five months getting her motion back, but when I saw her she was doing her housework and had no antero-posterior instability of the knee, though she was limited in flexion to a right angle and was a trifle short of complete extension. She was a very heavy woman, and I presume the after-treatment was not pushed very hard by the patient herself.

The feeling of dissatisfaction which I had entertained over the operation when it was completed and the fairly satisfactory functional result which was obtained led me to wonder whether injuries of that sort would not take care of themselves pretty well, any way, for I was, and am still, loath to ascribe the present (3 yrs. postoperative) very satisfactory condition to anything I did at the time of operation.

CASE IV. During the month of December, 1920, I was called to see a young woman who had been injured in a coasting accident at Wellesley. Her right leg was resting upon the side rail of a double runner in a flexed position. The toes of that foot came in contact, in the rapid progress of the "runner" down a hill, with some solid object with sufficient force to violently abduct the leg on the thigh and hurl her and the two companions who were behind her off the "runner" and roll them some distance over the snow. She could not pick herself up and was carried to the College Infirmary, where I saw her the morning after the accident. There was great pain in the knee, with moderate effusion. The leg was flexed to about 30 degrees and was so sensitive that it was impossible to make a satisfactory examination. A radiogram showed that there was a line of fracture at the base of the spine of the tibia and that the whole process was lifted somewhat away from its base. This condition was evident in both views. An ether examination was then given her and no lateral or antero-posterior hypermobility was present, but the leg could not be readily extended. However, with the exercise of gentle pressure in extension full motion in the direction was secured and the leg was put in a cast. Subsequent x-ray examination showed the avulsed tubercle in a better position than at the time of the first observation. The cast was continued for about 5 weeks and then passive manipulation and attempts to regain motion were commenced. She is now in possession of full use of the leg and makes no complaint about it except that when very long on it she finds she tires more easily in that than she does in the other leg. This was a case of uncomplicated fracture or avulsion of the spine of the tibia without any injury to the crucials or the lateral ligaments. It indicates clearly enough that certainly, in those cases where there are no condylar fractures, merely an avulsion of the spine from its base, no open operation is

necessary. Pegging this down with some sort of a bone peg would have been a wholly unnecessary and unjustifiable procedure.

A considerable amount of experimental work has been undertaken in an endeavor to understand the manner in which these crucial tears and tibial avulsions take place. It would appear that they must be more or less clearly connected and that whether the one or the other takes place must depend upon whether the bone or the crucial ligament was the stronger or, what is more probably true, upon some circumstance whereby the one or the other was better guarded against the violence inflicted. Experimentation on the cadaver in an attempt to solve a problem of this kind makes no appeal to me, for in life there are both positive and negative factors entering into the production of traumatic lesions which could never be staged after death had ensued and rigor mortis set it and are, indeed, very infrequently staged during life. They should perhaps be given for what they are worth but this appears to me to be a very poor sort of evidence upon which to build up a theory.

Dittle, who had a case of crucial ligament tear lost the patient after amputation of the thigh. In addition to the injury to the crucials there was also a fracture through the spine of the tibia. The nature of the injury causing these lesions was known in this case and so, after the death of the patient, he undertook to reproduce the same injury in the other leg by repeating the trauma in the same manner as in the first instance, viz., with the leg in flexion and forced abduction. From all the reports of attempts at experimental production of crucial rupture it would appear that the outer defense of the crucials and the tibial spines is the internal lateral ligament and its muscular reinforcements. If this is seriously torn or sufficiently badly stretched, so as to permit of the procurement of a laxity leading to over-tension upon the crucials, we may find anything, ranging from a complete tear, to a partial rupture or merely a severe stretching, if the ligament is weaker than the bone or the application of the force has been in such a fashion as to provoke the tearing of the ligaments rather than a fracture of the tibial spine. The possibilities of over-stretching of the structures which make the knee-joint stable are familiar enough to those who have observed the effects produced upon some knees in the course of the treatment of hip disease with traction splints. It is evident that all ligamentous structures may be stretched if the force is applied gradually enough under the proper conditions. Again when the internal lateral ligament is torn in its deeper fibers and, as occasionally happens in these cases, thin plates of bone are pulled away from the internal femoral condyle when this ligament is stronger than the bone, then the possibility of abduction of the leg, when in full flexion, permits of the develop-

ment of rotation of the tibia to an extent which threatens the integrity of the crucials.

Interesting as speculations in respect to how these injuries are actually brought about may be, it is after all an academic question. Exact knowledge as to how it was done would not lead to the diminishing of even the number of instances of the accident. Therefore the interest in this partial review of the reported cases centers largely upon the methods of treatment employed by various observers and more particularly upon the outcome of these treatments. The earliest reported case is the one described by Godlee in 1888 which was a museum specimen procured from a patient whose leg was amputated by Erickson in 1873.

The following résumé of the literature is chronological.

MAYO ROBSON, *Ann. Surg.*, 1903, Vol. 37, p. 716. (Paper read at Clin. Soc. Lond., Dec., 1902.)

A 41-year-old miner was crushed under a landslide, sustaining multiple injuries from all of which he recovered at the end of 36 weeks except from that inflicted upon the knee. This was lame, weak and unstable. The tibia would stay in its proper relation with the femur only when it was held forward, immediately dropping back if left alone. It could be brought forward somewhat in front of the femur and there was also free lateral movement. Fluid in joint. At operation the joint capsule was injected and there was much effusion. Both crucials were torn across at their upper insertion and frayed out. As well as he was able, he reattached them to the synovial membrane as near as might be where they belonged. Catgut was used. At the end of a month of fixation passive and then active efforts were commenced to restore motion. Six years later he was seen by Robson's house surgeon who reported his leg as perfectly strong. He could walk without limp and was able to run. Worked 8 hours per day at his old work in the mines and only when he became very tired did he have any discomfort in the knee, and then only on the inner side. There was no abnormal mobility. Extension was complete; flexion a little limited after a right angle was passed with some crepitation and pain if forced flexion was attempted.

W. H. BATTLE, *Trans. Clin. Soc. Lond.*, Vol. 33, p. 232.

A woman of 50 had her leg caught between a station platform and a moving train and outwardly twisted. Admitted to St. Thomas Hospital, July 23, 1898, and discharged Oct. 8, 1898, with a leg capable of flexion to a right angle and ability to walk well. The ligaments of the joint seemed intact. There was evidence of rupture of the crucials and lateral ligaments and open operation was undertaken, after failure by manipulation to be able to secure a readjustment of the

bones, a fascial band was found to be obstructing and was divided. The anterior crucial was completely torn across and the posterior partially torn. The crucials and laterals were sutured with silk and the ligamentum patellae was also sutured as the joint had been opened by that route.

SIR ROBERT JONES, *Clin. Jour. Lond.*, 1906, Vol. 28, p. 51.

In this article Sir Robert treats of the internal derangements in practically the same way and based upon about the same material that he does in the article in the *Annals of Surgery* for 1909. There are no other reported cases or ideas regarding the condition.

Avulsion of the Spine of the Tibia. J. H. PRINGLE. *Annals of Surgery*, Aug., 1907.

Three instances on record at that time, viz., that of Dittle, Poncet, and one admitted in 1873 to the University College Hospital in London. In all three of these cases the lesion was discovered either after death or at amputation. Author's case: CASE I. Male, 36, admitted to Royal Glasgow Infirmary June 14, '03. A large, powerful man was knocked down by the shaft of a cart and the knee forced inwards. There was much bruising and effusion and the only abnormal mobility was in abduction at the knee. Question of crucial rupture was raised, as was that of rupture of internal lateral ligament. On exposure of the internal lateral ligament 10 days after entrance, there was no evidence that it was not intact. Under the anaesthetic, as before, there was no abnormal antero-posterior movement at the knee. The joint was then opened and it was found that the anterior crucial, still attached to bone, had pulled the spine of the tibia away from the head of the tibia. This was sutured with a little difficulty. He has been seen several times since and has a good result though a slight amount of abduction persists and in coming down stairs he occasionally has a little trouble.

CASE II. In 1902 Pringle saw an athletic young man, who 5 months previously had been injured in the knee at a football game, and since then there had been instability of the joint. There was great looseness of the joint without fluid when seen by Pringle and apparently about 25 degrees of abduction with the leg in full extension was possible. There was marked atrophy of thigh and calf. The tibia could not be displaced forward and no abnormal rotation was possible. However at operation there was forward movement of the tibia on the femur without rotation; no rupture of the internal lateral ligament but a tear of the anterior crucial which was reattached to the external condyle. Good recovery with restoration of stability and confidence together with the resumption of all athletic activities with very slight abduction in full extension. A second injury 3 or 4 years after

was productive of a severe strain without any permanent injury.

The author then proceeds to discuss crucial ruptures, citing first Dittle's case and then Robson's. Dittle's case was caused by forcible abduction of femur with leg in flexion. The leg was amputated and avulsion of the tibial spine then noted. Patient died and Dittle was able to produce the same lesion in the other leg with some difficulty, experimentally, by applying the force as it had been applied in the production of the accidental avulsion.

Pagenstecher and Harrigschmeid have both produced this lesion and rupture of the crucials by blows upon the front or back of the head of the tibia. Pagenstecher was only able to rupture the anterior crucial from its femoral attachments. Hyperflexion and hyperextension are capable of most often rupturing the anterior and posterior ligaments respectively.

Pringle is of the opinion that flexion, abduction and rotation of the leg, when the pelvis is fixed, is the more common method by which the anterior crucial is ruptured and of the three, rotation is of the greatest importance. He further states that it is his belief, as a result of his experiments upon the cadaver, that when the anterior crucial is ruptured a greater amount of rotation (inward) of the tibia upon the femur occurs with the leg in complete extension and that under these circumstances the internal lateral ligament has been subjected to great stress and its deeper fibers have been torn, thus permitting of abduction of the leg when extension is complete, an impossible situation without rupture of the anterior crucial. In conclusion he decides that abduction in full extension means rupture of anterior crucial plus tear of deep fibers of the internal lateral ligament; that ability to push the tibial head backward with leg in flexion means posterior crucial tears, whereas ability to move the tibial head forward means anterior crucial tear when leg is in extension. He concludes that all joints with any of these phenomena present should be explored and that often, in this way only, can an accurate diagnosis be made.

SIR ROBERT JONES (*Annals of Surg.*) Dec., 1909 cites one case of fracture and backward displacement of a tibial spine, together with the crucial ligament attached thereto, and says he recalls no other case related in the literature. (Case IX in this series of reported cases.) His case was a 40-year-old man whose injury was from a bicycle accident. Effusion and inability to extend the knee. The anterior crucial was carried back with the tibial spine. Bone was removed leaving enough fibrous tissue to which to attach the anterior crucial and secure a fair functional result without power for complete extension. This operation was not done until 8 months after the accident.

In regard to the ruptured crucial she had op-

erated only one, in 1909. The anterior crucial was completely torn across and frayed out. Suture was by plication, not end to end, but in 8 months stability and mobility to the joint were secured. In this case 10 weeks after the accident, which resulted in a dislocation of the knee, there was inward, but no outward, rotation, and the tibia could be displaced forward when in extension. A second one in a boy of 15 with a dislocated knee (plus a necessary rupture of both crucials) he kept in fixation 2 months and obtained a good recovery. He believes that it is a not uncommon injury and is amenable to mechanical treatment with good results if this is kept up long enough.

S. ALWYN SMITH. *British Journal of Surg.*, vi, 176, 1918. Injuries to the Crucial Ligaments.

The writer makes a series of 9 cases the subject for a clinical report and discussion of the subject of injuries to the crucials. He comments on the fact that up to ten years previous to the time of writing very little had gotten into the literature on the subject. He refers to the experimental work of Högj, Schmeid, Pagenstecher, and Little. Pringle's case of avulsion of the tibial spine (1907) and Corner's work on the surgery of the knee-joint (1914) are the subjects of reference. The writer, while associated with Sir Robert Jones, was struck by the fact that whereas intra-articular fractures were more frequent than was commonly supposed, many of them were connected with crucial ligament injuries and in almost as many there was no such injury to the ligament, though the trauma was to all intents the same. Oftentimes there would be a fracture of the tibial spine without crucial ligament injury. One of the purposes of the paper was to show the importance of stretched or strained crucial ligaments when associated with injuries to the semilunar cartilage, offering an explanation as to why the usual surgery of the semilunar injury was not as successful in individuals whose semilunar dislocation was complicated by crucial ligament tear.

He enumerates the supports of the knee-joint, particularly the muscles, the synovial and fibrous capsule, with its lateral and posterior reinforcements, also the semilunars and crucials. Each and every one of these is dependent upon the other to a certain extent. He also cites the mechanism by which each is aided to exert its protective action upon the joint; e.g., of the semi-tendinosus tendon in posterior crucial tears just as the sartorius is used in the anterior crucial substitution.

The results of his 9 cases have been in the main satisfactory though the results in two were bad. These were the earlier cases and may perhaps be due to imperfections in early technique.

ROBERT JONES and A. SMITH. *Brit. Jour. of Surg.*, 1913, i, 70. On Ruptures of the Crucial Ligaments of the Knee and Fractures of the Spine of the Tibia.

Though Pringle's case of tibial spine avulsion was the first reported as successfully stitched back, Richard Godlee, in 1888, described the first citation in the literature. This was from a case amputated by Erickson in 1873.

The authors do not wholly agree with Pringle in his explanation of the mechanism of avulsion of the tibial tubercle for they think it does not explain all the cases. They had seen and report 17 cases of injury to the spine of the tibia in 3 years. They describe the shape and size of the tubercles and the inclination of the intercondylar notch and call attention to the fact that osteo-arthritic changes in the spines cause sharpening of the tubercles and then state the signs that indicate rupture of the crucials and the chief indication of avulsion of the tibial spine.

A. PONCET. *Bull. et Mém. Soc. de Chir. de Paris*, 1875, i. Arrachement de l'épine du tibia à l'insertion du ligament croisé antérieur.

This is a record of a verbal report made by M. Despus from the Chief of the surgical clinic of the Hotel Dieu of Lyons. The anatomical material was demonstrated from the autopsy of a man of 50 who fell from a height and died as a result of a skull fracture. At the autopsy the surgeon in attendance, by pure accident, had the left knee-joint opened, though there was no evidence of external violence, and found the joint full of blood and the anterior crucial was observed attached to the spine of the tibia, which it had avulsed. Poncet thought such a lesion must be caused by torsion of the knee and might occur with very little evidence of its existence from the outside.

MEDICAL TIMES & GAZETTE, 1876, ii, 389. Separation of the Spine of the Tibia.

This article cites as rare, at this time, of the type of fracture of the tibia described by Prof. Pullet of Bordeaux, as follows: An energetic landlord was ejecting a tenant whose legs "crossed themselves backward." Someone gave the man a kick in the thigh which resulted in a bloody effusion into the knee-joint. Aspiration was followed by infection and amputation. Examination of the specimen showed that the torn portion of the anterior crucial ligament had detached itself from its lower origin and had pulled an oval portion of the head of the tibia off with it. The discovery of this condition led Dittle to try experimentally to repeat on the cadaver the kind of violence that had resulted from this sort of injury. The method employed consisted in the application of force in flexion, extension and rotation. In extreme extension the tibia gave way and if anything occurred inside the joint it was the posterior ligament that yielded. In over-flexion it was the anterior ligament that gave way but always remained attached to the tibia. This report is in *Centralblatt für Chir.*, No. 29. He refers then to Poncet's case and cites still another, now in

the Museum of the Univ. Coll. Hosp., London, obtained in April, 1873. This was exactly like Poncet's except that the patient was a boy of 11 years.

G. COTTE. Three cases of Restitution of the Crucial ligaments of the Knee. *Lyon Chirurg.*, Vol. 16, 1919, 586.

CASE I. A young man, 21, was thrown by the explosion of a shell while in service, the leg being in a position of forced flexion. He could not get up nor walk; great effusion immediately. Treated by immobilization and massage, passing through a number of hospitals until he finally fell into the writer's hands, at which time there was no pain or motion but a decided laxity both to antero-posterior as well as lateral motion. The forward movement of the tibia from a position where it was easily palpated in the popliteal space could readily be recognized. It also would appear that there was a rotation of the femur on the tibia. Open incision was resorted to and the anterior crucial was found ruptured. There were only two thin strands of fibrous tissue left to represent it. With Allen's perforator he tunneled both the tibia and the femur and passed a suture 3-4 mm. in diameter holding the two bones in close apposition, the suture being buried in the periosteal tissues. Silk was the material used supplemented by a few catgut sutures. A posterior splint was employed. This was removed on the 30th day and for the first time passive motion was practised. Seven weeks after the operation and at the time of leaving the hospital the result promised to be an excellent one, but when later he was seen after commencing to walk, the laxity and subluxation returned and the results seem not to have been as good as promised.

CASE II was a soldier who had ruptured a crucial (anterior). He was operated first for a fringe which though removed brought no relief. A second time he had the joint opened and the ruptured crucial was found and repaired with a strip of fascia lata with no better result apparently, for there was great pain, effusion and locking of the joint. A third arthrotomy was performed to arthrodesis the joint and it was then discovered that he had a dislocation of the semilunar which was responsible for the symptoms following the two previous operations and that the crucial repair was satisfactory. The patient refused to have anything done other than an arthrodesis.

CASE III. This patient was a young man who had a ruptured anterior crucial and a dislocation of the semilunar. He was kicked by a horse and his symptoms were all those of semilunar dislocation. The operation was performed after exposing the joint through a U-shaped incision. The anterior crucial was repaired by suturing a piece of fascia lata in its place, removing the torn meniscus of the semilunar,

and restoring the patellar tendon. He was enough better so that he was accepted for military service whereas he had been refused before.

His belief is that rupture of the crucials alone is a rare accident; that the lateral ligaments are commonly ruptured along with the crucials and that not infrequently a meniscus goes with them. His confrère, Tarnaviev, holds an opposite opinion and he reported cases of the same sort in this same journal.

MEDICAL RECORD, Vol. 96, 1919, p. 948.

There is a discussion occurring in the New York Academy of Medicine at which a paper was read by Dr. W. A. Sherwood, based upon 400 cases of knee-joint injury, occurring during the period of military preparedness at U. S. Army Hospital No. 1. There were several cases of ruptured crucials and fractures of the tibial spines. The paper has not yet been published or at least come out in the literature. The meeting of the Academy at which it was read was that of Oct. 3, 1919.

PARIS CHIRURGICAL SOC. DES CHIRURGIENES DE PARIS, xi, 1919, pp. 53 & 352.

1. Rene Le Fur. Primary suture of crucial with recovery.

Had previously reported 6 cases with good results from operation. The case he now reports, 26 hours after the injury, was one of severe injury from a bullet in the knee, with cutting away of the crucial and injury to the superior articular support of the tibia. Operated immediately, very minute care being given to the sterilization of the joint with ether. Three months after the operation, consisting of disinfection, repair of crucial and a partial resection of the articular surface of the tibia, it was impossible to see any difference between the sound and the wounded knee so far as function was concerned. The incision was closed without drainage, which is a menace to any joint, the writer claims.

2. Henry Fay. Primary suture of ligament of knee.

Report of a shell explosion as a result of which the knee-joint was opened by a shell fragment which imbedded itself in bone and ruptured a crucial.

Complete sterilization with ether one-half hour after injury and repair of rupture with perfect functional result.

E. W. HEY-GROVES. *British Journal of Surgery*, 1919-20, 7, 505.

Hey-Groves says that all the crucials he has seen have been so destroyed that there was no question of suturing them. He believes that it is justifiable to explore a knee-joint through a full exposure to secure opportunity for observing the entire joint if for no other reason than to enable a diagnosis to be made and he feels that many of the obscure cases may be diagnosed

and treated in this way. Mayo Robson appears to have been the first to undertake the repair of a ruptured crucial though Battle published a case first. Gaetjes reviews the literature to 1913 and found 33 cases which, with his 7, made 30 in the literature up to that time, and he included among these Mayo Robson's. Of these, 12 were subjected to an open operation. In 5 an attempt was made to effect a repair and in the 5th it consisted in the removal of bone torn off by the ligament. In 1913 Robert Jones and A. Smith reported a number of cases of fracture of the tibial spine some of which were associated with rupture of the crucial ligaments. In 1917 the author reported an operation for the repair of these ligaments by means of fascia or tendons. During the war the rupture of these ligaments was quite common and in the 3 years before the publication of this paper the author had operated 14 cases. He then describes the anatomy of the crucials at length. Most of his cases occurred as the result of being knocked down or buried by shell explosions. He then describes under diagnosis the symptoms and physical signs, the balance of the paper being a description of his tunneling operations through the internal condyle for rupture of the anterior crucial and the external condyles for rupture of the posterior crucial with the introduction through the tunnel of a portion of the gracilis and semitendinosus tendons in the latter.

As to the methods of getting at the ligaments for purposes of repair, he feels that the method of dissection and removal of the tibial tubercle ($1\frac{1}{2}'' \times \frac{3}{4}'' \times \frac{1}{2}''$ of bone) and reflecting it back, dissecting carefully so as to preserve the tendons on the inside and the ilio-tibial band on the outside is the best. The advantage of this over Alwyn Smith's median patellar incision, is that in this method it is not possible to give the right inclination of the new ligament, which should be downward and forward in the case of the anterior crucial and downward and backward in the case of the posterior, though it is true that this direction is more nearly vertical than that of the anterior crucial.

His cases were all of rather recent date, so that he cannot report end-results, but so far as he can, in the 14 cases, 4 showed no benefit, 4 were benefited to some degree; 4 were cured to such an extent that they could return to active duty in civil life without the use of a splint that he makes them all wear when they begin to walk. Two had been operated upon only two months before publication of the paper.

Fracture of the Tuberosity of the Tibia. Report of 3 Cases. JAMES W. SEVER. *Jour. Am. Orth. Assn.*, May, 1916, xiv, 299.

Sever reports 3 cases, one from an automobile accident and two from falls. He was unable to offer any explanation from the study of these cases as to how the force that caused them was

applied. He feels that two of his cases in addition to the tibial tuberosity injury had rupture of the anterior crucial.

CASE I. (Sever) Patient was a young woman who was knocked down by an automobile and right knee injured. Taken to hospital and her x-ray showed she had fractured the base of the external tuberosity of right knee about two-thirds of the distance from its anterior border. There was some downward and outward displacement. She was treated with a cast. The end-result was not a perfect knee because there was some knock knee and a weakened joint hindering her from using the leg as freely as she would like.

CASE II. (Sever) A steward, of 59 years of age, fell four ft., striking on knee. Wore cast 2 mos. and then a caliper splint for 2 mos. Seen by Sever 2½ yrs. after accident, when he could not use his leg well enough to do his former work. Could not walk without crutch; leg was weak and he tired easily. Moderate knock knee on affected side, with increase of abduction. About the external tuberosity there was bony thickening. X-ray showed fracture through external condyle of the tibia, extending into joint and also that the tuberosity of the tibia had been injured and slightly displaced. The slope of the external articular surface of the tibia had been altered. This evidently caused joint strain, which was the basis of his symptoms. There is not in this, nor was there in Case I, any restriction to complete extension. Sever thinks that by balancing the weight over "Thomas heels," relief can be brought to symptoms.

CASE III. Male, 45, fell 60 ft. six months before Sever saw him. He had multiple injuries. For 2 mos. he wore a ham splint on the leg with the affected knee. There is thickening about the internal tuberosity and a slight ridge where the upper fragment has slipped forward. Leg can be fully extended, but flexed only to right angle. Functionally the result is good. X-ray shows the fractures through the condyle, the head of the fibula and the head of the tibia.

J. J. KURLANDER. *Surg., Gynec. & Obstet.*, 1915-1920, 179. Fracture of the Spine of the Tibia.

A single case is reported with reference to the work of Pringle and Godlee in 1907 and 1888 respectively. Male, 19, fell in 1913. While jumping from a wagon he landed in such a way that his leg flexed suddenly and struck his knee on the curb. He could not rise and could not extend the leg. Great swelling, pain; x-ray said to have been negative. A later x-ray showed a transverse fracture through the spine of tibia. He made a complete recovery under the use of plaster cast in full extension. Quotes two of Sir Robt. Jones' cases and refers to the possibility of operation in certain instances, but advises against it unless fixation fails.

Same author later, in *Jour. Am. Med. Assn.*, Sept. 10, 1921, pp. 855, adds two more cases and a fuller discussion of the literature. This was in a paper read before the A. M. A., orthopedic section, at Boston, June, 1921.

His two additional cases were caused by violence from falls. In one case in a woman of 50, when she fell on the stairs, her knee being flexed and abducted strongly. There was no sign of crucial ligament rupture, but there was too much abduction of the tibia on the femur, due to internal lateral ligament tear. X-ray showed avulsion of the tibial tubercle. He lost sight of this patient.

The third case was a 25 yr. old man whose fall caused him to violently hyperextend the knee. Was seen 4 mos. after injury by Kurlander when the chief complaint was of locking the knee, causing pain. There were a few degrees of limitation in motion in flexion and extension. There was no sign of crucial ligament tear. X-ray showed a crack through the tibial spine. He reviews the literature available.

FOSDICK JONES. Fracture of Tibial Spine. *Col. Med. Jour.*, Aug., 1920, pp. 217.

The author reports one case and reviews the bibliography. He refers to the cardinal symptoms of this injury as excruciating pain; great swelling within a few hours; inability to extend and flexion of from 15 to 35 degrees. Advocates conservatism in treatment and gives good prognosis under careful management.

His own case was that of a strong, athletic young man. Left leg was caught between the forward bumper of his car and the garage door, the force being directed against the inner side of the left knee. Could not flex or extend leg; had great pain and extensive effusion within an hour. Pain continued for 5 days and was over internal tuberosity of tibia; there was very little motion and attempts to secure it were very painful. There was an oblique fracture of the tibial spine, with displacement backward of upper fragment. Forcible extension and a cast were applied and continued for 9 weeks. Motion has increased until at date of reporting case full extension and flexion to 95 degrees were possible without lateral or antero-posterior displacement.

At this meeting 6 other cases were shown by x-ray, occurring in the practice of other Colorado surgeons, all showing fractures of the tibial spine.

CONCLUSIONS.

The keynote of the experience of the most careful observers seems to be that ruptures of crucial ligaments are not as serious affairs as at one time they were credited with being. Very serviceable joints may be expected after injuries of this nature and the operative methods employed may be counted upon to restabilize the joints with very little surgical risk. It would

not appear that in the majority of instances the conditions call for the tunneling operations and transference of muscles or transplants of fascia. Through the median patellar incision the opportunity to deal pretty directly with the crucials enables one to repair them or bridge them so that they repair themselves. Protection with a "cage" splint for several months after walking is commenced should be insisted upon.

So far as the treatment of avulsions of the tibial spines are concerned, my own experience might of course be wholly deceiving. It was sufficiently convincing to me, and from what I can learn about them in the reported cases, my impression has been borne out by the experience of others, viz.: that they should be treated conservatively by a cast with the leg in extension.

One final impression that such thought as I have been able to give to this subject has left upon me is that the probable reason for the comparatively good functional results that follow upon injuries that theoretically seem as though they were certain to be more or less serious, is that the contours of the articular surfaces of femur and tibia are not disturbed in the ligamentous tears. If they become distorted motion is lost and function is impaired, but when they are spared from injury the repair of these structures ensures a very considerable and generally fairly complete restoration to function.

An arthritic patient who lies abed for a long time with legs in slight flexion or complete extension will square off his condyles and subluxate his tibiae to such an extent as to completely incapacitate him even before he has eroded his cartilage or injured his capsule or ligaments enough to produce an incapacitating arthritic condition. If such osseous distortions may be avoided, there is scarcely any limit to the amount of legitimate optimism we may entertain as to the possibilities of repair and restoration of function in a knee-joint.

COMPARATIVE STATISTICS ON PHYSICAL EXAMINATIONS OF PUPILS OF THE BOSTON PUBLIC SCHOOLS FROM DECEMBER 1, 1915 TO JUNE 30, 1922.

BY WILLIAM H. DEVINE, M.D., BOSTON.

Director of Medical Inspection, Boston Public Schools.

There is a law in Massachusetts requiring annual physical examinations of school children. It is surprising the lack of knowledge that exists among parents, educators, and even physicians in regard to the requirements. When unreasonable parents protest, they are surprised to learn that the examination is compulsory, and promptly yield to argument when informed of this fact. Since the writer has had charge of medical inspection in the Boston public

schools, all have submitted to the annual examination; no child is excused.

The law requires that children shall be separately and carefully examined every school year, and a written notice of any defect or disability sent to the parent or guardian. In Boston, it is required to complete these physical examinations before December first. The wisdom of this rule is obvious—it admits of prompt and timely treatment.

In some states a law which allows the family physician to make examination has been tried. I cannot see any advantage to this. It would be impossible to obtain the impartial and uniform records by this method as by examination of school physician.

All children are weighed and measured at time of physical examination and record of weight and height is made on physical examination record card. Outside wraps, such as coats, sweaters, etc., are removed before weighing. Children from the kindergarten to the sixth grade, inclusive, are stripped to the waist for physical examination.

In addition to the regular routine examination, the school physician examines all children who require it as often as necessary.

Physical examinations of girls in high, Latin, and Normal schools are made in the presence of the instructor of physical training, the teacher, or matron. Physical examinations of pupils assigned to open-air classes are made in September and re-examination in February.

Every child between the ages of fourteen (14) and sixteen (16) years, who presents the required promise of employment card, and other evidence required by law, to the school physician assigned to the office for the issuance of employment certificates, is examined by the physician who certifies whether or not the child is sufficiently sound in health and physically able to perform the duties indicated on the card. (See Table 1.)

Children in open-air classes and in malnutrition groups are weighed and measured monthly and record is kept on special cards.

Special physical examination of candidates for the Normal school are made by the school physicians in January and June preceding graduation from high school. Report on each examination is sent to the Director of Medical Inspection. Applicants for admission to Normal school may be rejected for any of the following causes:

- Communicable diseases, *e.g.*, tuberculosis
- Defective vision.
- Defective hearing.
- Epilepsy.
- Chorea.
- Chronic bronchitis or asthma.
- Affections that are
 - (a) unsightly, *e.g.*, chronic skin diseases.
 - (b) offensive in nature, *e.g.*, ozena and allied diseases.

TABLE 1.—REPORT ON PHYSICAL EXAMINATIONS FOR EMPLOYMENT CERTIFICATES
NOVEMBER, 1915, TO JUNE 30, 1922

	11-0-1915 to 8-31-1916	9-1-1916 to 8-31-1917	9-1-1917 to 6-30-1918	7-1-1918 to 6-30-1919	7-1-1919 to 6-30-1920	7-1-1920 to 6-30-1921	7-1-1921 to 6-30-1922
Number of children examined	10,174	17,577	16,722	19,810	18,711	11,581	8,281
Boys	6,121	10,785	9,585	10,725	10,265	6,460	4,447
Girls	4,053	6,792	7,137	9,085	8,449	5,121	3,834
Number of children without defects	4,986	8,041	7,116	9,064	8,448	5,798	4,476
Number of children with defects	5,188	9,536	9,606	10,746	10,266	5,783	3,805
Total number of defects	6,663	11,846	12,906	13,239	12,872	7,144	5,011
Number of children recommended for certificates	9,969	17,103	16,088	19,470	18,048	11,049	7,839
Number of children not recommended for certificates	205	474	634	340	666	532	442

Any disease or condition which the school physician certifies and deformities that would manifestly interfere with physical activity, are also causes for rejection.

The results of annual physical examinations in public schools with re-examination of special cases is one of the most prophylactic features of public health measures. The timely treatment of diseases; the prevention of the spread of communicable diseases, *e.g.*, pulmonary tuberculosis, etc.; the discovery of defects qualifying children

for open-air and other special classes, are some of the advantages that are evident in addition to the many ailments discovered, and referred to family physicians and clinics.

It would be very difficult to carry out physical examinations efficiently without the assistance of the school nurse in the elementary school and the physical training instructor or matron in the high schools. Parents of girls in high schools and upper elementary grades object to examinations unless carried out in this manner.

TABLE 2.—COMPARATIVE STATISTICS OF PHYSICAL EXAMINATIONS OF PUPILS OF
BOSTON PUBLIC SCHOOLS FROM DECEMBER 1, 1915, TO JUNE 30, 1922

	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22
Total number of pupils examined	99,862	104,287	104,762	100,564	105,193	107,664	113,780
Total number without defects ..	30,781	38,318	43,128	43,328	46,065	51,158	56,262
Total number with defects	69,081	65,969	61,634	57,236	59,128	56,506	57,518
Defects as follows:							
Defective Nasal Breathing:							
Anterior	1,292	1,297	1,108	826	633	413	422
Posterior	5,966	5,282	4,975	5,338	6,158	4,652	5,108
Hypertrophied Tonsils	18,444	14,806	14,037	12,734	14,015	13,238	15,911
Defective Palate	351	169	121	65	48	54	113
Cervical Glands	18,841	7,746	7,201	4,777	3,351	2,319	2,585
Pulmonary Disease:							
Tuberculous	44	22	28	15	13	6	15
Arrested Tb.	—	—	5	—	—	—	—
Question	—	1	—	—	—	—	—
Non Tuberculous ..	683	453	456	516	473	297	367
Cardiac Disease:							
Organic	1,330	1,406	1,624	1,572	1,502	1,455	1,666
Functional	1,668	1,716	1,864	2,209	2,215	2,404	2,365
Nervous Disease:							
Organic	74	48	46	26	54	45	47
Functional	221	179	138	149	174	160	136
Chorea	43	23	33	14	16	26	30
Orthopedic Defects:							
Tuberculous	88	76	63	51	37	32	38
Non-Tuberculous ..	1,698	1,770	1,774	2,221	2,131	1,881	1,845
Skin	3,071	2,978	2,808	2,007	1,716	1,766	1,718
Rickets	383	326	284	132	146	114	121
Malnutrition	2,110	1,712	2,087	2,359	2,353	2,543	3,023
Totals	56,307	40,010	38,152	35,011	35,085	31,345	35,510
Defective Teeth	56,750*	55,638*	50,507	44,331	45,567	43,685	41,783
Grand Totals	113,057	95,648	88,659	79,372	80,602	75,030	77,293

*During the year 1915-16, and from October 1, 1916, to January 1, 1917, defective teeth were classed as primary and secondary. In some instances, if a pupil had defective primary and defective secondary teeth, it was recorded as two defects instead of one. In order to avoid duplication of defects, it was thought advisable to record defective teeth without regard to whether they were primary or secondary. This method was adopted commencing January 1, 1917, and precludes comparison for the two years.

The number of cases of cardiac disease in the Boston public schools remains practically the same for the past six years. Naturally it would remain about the same or increase from year to year, as children are not excluded for this disease. The figures in the preceding report have been compiled from the examinations of forty-nine (49) school physicians, and the fact that these do not vary to any great extent in the past six years is some evidence of the accuracy of the observations of the medical inspectors.

All cardiac cases are followed up by the school nurses in the same manner as other defects—the homes of the pupils are visited and parents instructed relative to care. The teachers are also notified in order that these pupils may receive special consideration.

The total number of home visits by nurses during the school year just closed was thirty-five thousand, six hundred twenty-one, (35,621) for all cases. It is impossible to state how many of these visits were especially for heart disease but the large number of nurses' visits indicates that the cardiac patients were not neglected.

About two per cent. of the children in school populations are found to have some cardiac disorder. In the Boston public schools about 1.25 per cent. organic and about 2 per cent. functional.

For obvious reasons the causation is uncertain. Only by careful medical supervision and follow-up work can the etiology be traced with any degree of accuracy. Rheumatism, infectious diseases, defective teeth, tonsils, and other local conditions have assumed an important place in the etiology of cardiac lesions, although I believe the importance of the minor ailments in the causation of morbid conditions of the heart is exaggerated. I have known many cases where the removal of teeth diagnosed as defective by x-ray have been removed with the idea that it would improve or cure the heart. Practitioners should proceed cautiously in these cases as sometimes the shock and impairment of health due to loss of teeth is an injury rather than a benefit. The dentist and nurse have been too susceptible to the well-meant propaganda of ardent enthusiasts who can see dental defects as the cause of many cases.

I am not disparaging defective teeth or infected tonsils as a cause for heart disease and the proper treatment of these conditions is advocated. The early and thorough physical examination of the school child has been a great step in progress in cardiac prophylaxis. The general practitioner should examine the heart in routine manner when he attends the patient for tonsillitis, diphtheria, scarlet fever, rheumatism, chorea, and other diseases which are known to cause cardiac disease. Not only should he make frequent examinations during illness but after convalescence, if possible, and note the condition of the heart when the patient is discharged.

The following is the list usually given by medical authorities as etiological factors in heart disease: tonsillitis, acute rheumatism, measles, pneumonia, diphtheria, chorea, pertussis, scarlet fever, syphilis, influenza, bronchitis, typhoid, nephritis, otitis media, chicken-pox, carious teeth.

No endeavor is made to give the relative frequency of the list enumerated above. Osler stated that endocarditis is found post mortem more frequently in chorea than in any other disease.

The prevention of heart disease offers a great field in prophylaxis. The timely notification of parents is an important step in prevention procedure. There were many cases where school notification was the first intimation to parents that a child had cardiac disease. Its early detection in the schools; longer rest in bed after contagious diseases; the proper care of the teeth and removal of diseased tonsils and adenoids should tend to reduce the number of cases.

The prevention of heart disease has been treated in a masterly manner by Dr. Haven Emerson in the Shattuck Lecture, June, 1921. Those who are interested are referred to this gem of medical literature. He states:

"My objective will be to persuade you that it is within the realm of possibility, within the reach of present-day medical and social knowledge and resources to make as much reduction in sickness and premature death from heart disease as may be obtained by teaching, by diagnosis, by organized medical services in the control of tuberculosis. What is important to obtain but not yet available is a careful clinical and pathological study of the age of infection or onset of valvular or other organic heart disease."

To summarize the principal points in the prevention of heart disease, the writer would recommend:

1. Examination as soon after birth as possible.
2. Prompt notification to parents of any cardiac defect with recommendation for treatment.
3. Special care during and after convalescence—more rest in bed—freedom from excitement, etc., during the stage following acute diseases; examination of heart when discharging patient.
4. Prevention of rheumatism and other diseases causing the ailment. This should include proper care of the teeth, removal of adenoids and tonsils if necessary, etc.
5. The prevention of communicable diseases.

The following is a quotation from the Acts of 1908, Chapter 181:

"In each of the subjects of physiology and hygiene special instruction as to tuberculosis and its prevention, shall be taught as a

regular branch of study to all pupils in all schools which are supported wholly or partly by public money."

The Director of Medical Inspection has reason to believe that that instruction has been conscientiously carried out in our schools.

Important points on prevention have been duly stressed by the physicians and nurses of this department in their instructions to teachers and pupils, and pertinent circulars have been distributed. These activities have been promoted by the earnest coöperation of the school force. The Director of Medical Inspection desires to emphasize the importance of continuing this good work.

The figures on tuberculosis as shown in this report may appear small but it must be taken into consideration that children with pulmonary tuberculosis are excluded from school and that naturally the number of cases would not increase at the same rate as cardiac and other diseases.

The tuberculosis leagues, Massachusetts and Boston, the tuberculosis clinics, the State and City Health Departments, the medical profession, school physicians, and school nurses have nobly coöperated in the prevention of tuberculosis.

CHRONIC INTESTINAL INDIGESTION DURING THE SECOND AND THIRD YEARS OF CHILDHOOD.*

By LEWIS WEBB HILL, M.D., BOSTON.

It is not generally realized that children during the second and third years need as careful dietary supervision as they do when they are on an exclusive milk diet, and many mothers who would not think of attempting to feed a small infant without medical advice, and who would take the utmost pains with milk modification, let the child eat practically anything he wants after he has begun to take solid food. It is this carelessness that is responsible for not a few of the cases of chronic intestinal indigestion which we all see so frequently; the rest of the cases follow an acute attack of fermentative or infectious diarrhea, which can likewise be largely prevented by proper feeding. Let us consider briefly the feeding of normal infants during the last quarter of the first and the whole of the second year.

There is at present a tendency to feed too varied a diet at too early an age, such as large amounts of green vegetables, potato, and eggs to infants even before they have reached the end of the first year. In many cases this does no harm, but in others it causes severe digestive disturbances, which may take months to repair.

My own practice is to begin semi-solid food, such as oatmeal, farina, or zwieback soaked in

milk, at the eighth or ninth month. At this time chicken or lamb broth with rice may also be added, and a small amount of apple sauce or prune sauce if the baby is constipated.

At the end of the first year the baby should be taking daily about a quart of whole milk, some starchy food such as cereal, zwieback, rice or dry bread, twice a day, a little soup or possibly beef juice, orange juice, apple sauce or prune sauce. This is a quite sufficient diet, and the average normal baby does well on it. At about the fourteenth or fifteenth month strained vegetables such as spinach, carrots or tender string beans may be added, and potato may also be added about this time.

Potato starch is for some reason more likely to cause digestive disturbance than almost any other kind of starch, and although we have all seen babies of a year old, or even younger, thrive while taking large amounts of it, in general it is best withheld until the fourteenth or fifteenth month. Potato and green vegetables should not be given on the same day at this time; it is usually best to give potato one day, a green vegetable and rice the next day. It is well not to give too much of the same sort of starch on the same day; if oatmeal is taken for breakfast it is best to use macaroni, zwieback or bread and butter for supper.

Soft-boiled or coddled eggs may be begun at sixteen months, a couple of spoonfuls at a time, and gradually increased until a whole egg is taken every day. Eggs do not agree with all babies, and if such is found to be the case in any individual instance, it is best to omit them temporarily from the diet, and to start them again in another month or two. Some babies who cannot take the whole egg can take the yolk, hard boiled and grated in with the vegetable or potato. Meat is usually begun at about two years, the best meat to use being chicken, lamb chop or crisp bacon. It is not common for meat to cause digestive disturbance, and I have a suspicion that it might probably be begun considerably earlier in small amounts, without doing any harm. No raw fruit should be given to children under four or five years of age; in this part of the country (North Carolina) all milk fed to babies and small children should be boiled or pasteurized at all times of the year, and it should not be Jersey or Guernsey milk. The child should not be fed between meals, and he should be made to eat every new article of food as it is offered, unless it actually seems to disagree with him.

It is just as easy to feed children correctly as incorrectly, and it will be found that the vast majority of children do well on the general plan outlined above. I have spoken somewhat dogmatically in order to be clear and to save time, and realize that very likely some pediatricists would criticize the above plan of diet.

So much for a brief résumé of the principles

*Read at the annual meeting of the Medical Society of the State of North Carolina at Winston-Salem, April 26, 1922.

of feeding a normal child; let us now consider chronic intestinal indigestion.

For practical purposes this may be divided into two groups: the mild cases, and the severe ones. In the mild cases there is a certain amount of indigestion, due almost always to overfeeding with fat or starch, but there is no far-reaching general nutritional damage, and the indigestion is not in most cases hard to correct. In the severe cases there is present a marked and a long-standing indigestion, which has continued so long that severe damage to nutrition has been brought about, which may take years to correct.

The Mild Cases.

A child of two or three years is brought to us because of failure to gain, poor color, occasional undigested stools, and probably a certain amount of abdominal discomfort. Upon examination we find a child who is somewhat underweight, who is pale, whose flesh is rather flabby, and whose abdomen is likely to be somewhat enlarged. There is nothing else found upon physical examination. Careful observation of the bowel movements is here of the utmost importance, for by knowledge gained from this source, together with a consideration of what the child is eating, it is not difficult to find out what element or elements of the diet he is not digesting. The trouble is usually due to overfeeding with either starch or fat, and the stools vary according to which element is at fault. In the starch cases they are likely to be rather large and mushy, of a brown color, and with a peculiar half sour, half foul smell, which somewhat resembles that of a pigeon. If fat is at fault they are likely to be rather light colored and not so large or so mushy as in the first case. Microscopic examination is of considerable importance, and without it, in this type of case, one is working in the dark. One may find a large excess of either fat or starch in the movement, and make one's diagnosis accordingly. Anything more than the very smallest amount of undigested starch is abnormal, but it must be remembered that there is normally not an inconsiderable amount of fat present. It is not possible to treat those cases successfully, unless one knows which food element is at fault; this is accomplished by a study of the diet of the child and by examination of his bowel movements.

The treatment of the mild cases is not difficult, and is most satisfactory. It consists simply in considerably reducing the amount of the offending element in the diet. In the mild fat cases it is usually enough to instruct the mother to pour off all the cream from the top of the child's milk, and to omit also butter and bacon. In the starch cases a reduction in the total amount of starch taken in, and a limitation to the more easily digestible forms is all that is required. Potato should always be with-

drawn and the green vegetables should be considerably restricted. Rice jelly, crisp toast or zwieback are, probably, as easily digestible as any form of starch. Rice can be given in the morning, and possibly again at noon, the zwieback at night. The rest of the diet would consist of milk, eggs, meat; essentially, then, the diet of a normal child with the starch somewhat restricted both as to quality and quantity. Under this régime the abdominal distress should soon disappear, the stools should improve and the child should begin to gain in weight.

Following is a typical case of starch indigestion of rather mild degree.

H. S. was first seen at fourteen months on account of failure to gain, and undigested bowel movements. She had been breast fed up to eleven months, and was then put on whole milk, cereal, broth, baked apple and baked potato. She takes one small potato every day, and likes it the best of anything in her diet. She weighed 21 pounds 8 ounces at one year, and has not gained since. Her stools are always rather large, and somewhat loose; today she has had three foul, mushy ones. Physical examination showed nothing remarkable except a somewhat distended abdomen, and a rather flabby condition of the flesh. The stool was large, mushy and rather foul. It was brownish green in color, and contained a good many small masses which looked like pieces of undigested potato. Microscopically it showed innumerable granules of undigested potato starch. This child was put on the following diet:

Breakfast: Milk, 8 ounces, plus oatmeal or farina.

Lunch: Milk, 8 ounces.

Dinner: Soup with rice, and one or two tablespoonfuls of well-strained carrot or spinach, junket, milk.

Supper: Macaroni, or zwieback and milk.

In a very few days her stools had improved, and about this time the grated yolk of a hard-boiled egg was added to her diet. She did very well right along, was kept on this diet for about three months, and potato was not added to her diet again for another three months. She is now about four years old, and handles potato and all other starches without difficulty.

The very severe cases are different. This condition, which we call severe chronic intestinal indigestion, is called by the English the "Coeliac" or the "Mucous" disease, and the late Christian Herter of New York, who was much interested in it, called it "Intestinal Infantilisism."

It is in reality a late stage of the condition of mild indigestion that we have already described, where the process is of such duration and severity that severe nutritional damage has resulted. It usually begins during the sec-

and year, but may be seen in children somewhat older. It is very likely to follow an acute attack of diarrhea, or may come on more insidiously. The chief thing about it is the extreme impairment of nutrition. The abdomen is very large, so much so that the disease is not infrequently mistaken for tubercular peritonitis. The face is sharp and haggard, the skin loose and inelastic without any subcutaneous fat, the extremities frail and weak, often so much so that the child cannot walk. The stools, which form a very important part of the picture, vary at different times. They may be large and formed, rather light in color; this type of stool contains a large amount of fat, and is likely to be seen when the diet contains a considerable amount of this element, as would be the case if the child were taking whole milk.

At other times the stools may be very mushy, unformed, and may show large amounts of undigested starch and cellulose, both macroscopically and microscopically. This type of stool is seen if the child has a considerable incapacity for starch, and if much starch is fed. There will also usually be occasional periods of diarrhea, when the stools are very loose and watery. During these periods they will usually contain large amounts of mucus, sometimes more mucus than actual fecal substance. The stools always smell very badly, no matter what sort of diet is taken. If starch and sugar are being fermented they will usually smell sour, and will react acid to litmus paper; if a considerable amount of protein is taken, they are likely to be very foul, and alkaline. Vomiting is not ordinarily present, but may be in some cases, and is a most troublesome symptom. The child is very much stunted in growth, both as regards height and weight, and a child of three years may weigh as little as 18 or 20 pounds. The mentality is, however, unimpaired. These children are almost always alert mentally, but are likely to be of a rather peevish disposition. Rickets is occasionally associated with the condition, but not frequently enough to be of any significance. What is the cause of the condition, and what conception shall we take of it in order to formulate a basis of treatment? There is no evidence to show that it is primarily an organic disorder of one of the larger digestive glands, such as the pancreas or liver: there is no evidence to show that the essential etiological factor is a primary inefficiency of any of the digestive ferments, and all students of it have tried the administration of various of these ferments without success. At autopsy there are no especially noteworthy or characteristic lesions found except a rather thickened and irritated intestinal mucosa. Probably the best conception to take of this condition is that it is brought about by a chronic infection of the intestinal contents (note I do not say intestinal wall) with organisms which should not be there, and that the small intestine, which should nor-

mally be relatively free from bacteria, is flooded with an alien bacterial population, which hinders the normal process of digestion that should go on there; this bacterial population lives upon the food within the digestive tract, and the irritating products resulting from bacterial decomposition of the food set up a chronic inflammatory condition of the intestinal mucosa, which in its turn probably hinders digestion and absorption. The late Christian Herter, who was as close a student of this condition as anyone, believed that the bacillus bifidus, which is so commonly and normally found in the stools of breast-fed infants, and an organism which he called bacillus infantilis, were the two most common offenders. For us the name of the organism or organisms which are present is not of especial significance, as long as we understand that they are almost always organisms which seem to thrive upon starch, and which do not readily attack protein. It is not certain whether the fat intolerance practically always found in these cases is caused by direct bacterial fermentation of fat or is secondary to the original carbohydrate decomposition.

This, then, is our working conception of chronic intestinal indigestion, and is probably not far from the truth. In a word, therapy consists in reducing or entirely removing from the diet the food or foods upon which the especial group of organisms which are present in any individual case, seems to thrive. By so doing, by declining to furnish a suitable culture medium to the abnormal bacterial flora, it tends to die out, and normal conditions are gradually restored.

We have four foodstuffs to consider: fat, sugar, starch, and protein.

Protein is very well tolerated, and a diet very high in protein is always advisable. A moderate amount of sugar, such as would be contained in milk, is usually tolerated and often very much more than this. Starch is hardly ever tolerated except in small amounts, and the very severe cases usually do better without any starch. In severe cases we have before us, then, the problem of nourishing a child on sugar and protein, with as high calorie a diet as possible, as these children need more calories than the normal child, before they will gain.

It is not easy to withdraw all starch from the diet, as the normal child depends so much on this foodstuff to furnish him calories.

Milk forms the basis of the diet, and lactic acid milk is usually better tolerated than sweet milk. This should be fat free, and if the child will not take lactic acid milk, boiled fat-free sweet milk may be used.

Whereas one would not feed a normal child over a quart of milk a day at the most, it is desirable to feed these children as much milk as possible, so that certainly as much as 48 ounces daily can be used, and possibly more.

If the child has a good sugar tolerance,—and very many of these children do,—sugar is advantageously added to the milk, and is a very valuable foodstuff, as it has a high caloric value, and is easily assimilable. Sugar is best given in the form of corn syrup, as originally advocated by Marriott. Corn syrup consists of glucose, maltose, and sucrose, and is a very easily assimilable mixture of carbohydrates. One ounce by volume contains 33 grams of carbohydrate, and furnishes 136 calories. I gave one child nearly five ounces daily, thus furnishing about 600 calories by means of the syrup alone. Usually it is best to start with about two ounces a day, divided between the different feedings, and then to work up, if possible.

Meat is the next article of food upon which we have to depend, and although it does not furnish so many calories as does the syrup, it is very satisfying, and adds bulk to the diet.

A child of three years often will take and digest as much as six rounded tablespoonfuls of meat a day, and, contrary to the usual idea that meat is difficult of digestion, these children are able in most cases to digest it better than anything else. The white meat of chicken is the best meat to use, as it contains less fat than most other meat. Two other articles of food which are of value are cottage cheese, and muffins made from casein flour.

Cottage cheese is familiar to most housewives, and is made by adding a teaspoonful of essence of pepsin to a pint of warm milk. This is allowed to stand until it has "set," when the curd is broken up, and separated from the whey by straining through cheesecloth. It is then lightly salted and broken into fine granular crumbs. It consists almost entirely of casein, and a pint of milk will furnish about three rounded tablespoonfuls of cheese, which contain 60 calories. After a while a child learns to like this, and will usually take 4 or 5 tablespoonfuls daily without trouble.

Casein biscuits may be made from starch-free diabetic flour, the one I have used being "Diaprotein." It consists almost entirely of casein. These biscuits are rather dry, and not particularly inviting as to taste, but most children like them. The best way to give them is to break one in small pieces, and moisten it with a little milk. The average child of three years would take 5 or 6 of these a day.

Made according to the usual recipe, each muffin contains about 65 calories. The usual recipe calls for bacon fat: if this is left out, the caloric value is considerably less, and each muffin would contain only about 25 calories.

The cottage cheese and muffins are more or less interchangeable, being both made up largely of casein, and if one is used, the other probably would not be. As a general thing most children like the muffins better than the cheese. Let us recapitulate a moment and see exactly what

a child of three years, weighing 20 pounds, might take on this plan of diet.

48 oz. fat-free milk	=180 calories
2 oz. corn syrup	=272 calories
6 rounded tablespoonfuls chicken	=150 calories
6 Diaprotein biscuits	=380 calories
	<hr/> 1282 calories

This gives a total of about 1280 calories, or between sixty and sixty-five calories per pound of body weight: a rather ample diet. The following table of approximate food and caloric values may be found of service.

MILK.

	F	C	P	Cal.
8 oz. fat free	= 0	11	9	80
8 oz. skimmed	= 2	11	9	100
8 oz. whole	= 9	11	8	168

CHOPPED CHICKEN.

		F	C	P	Cal.
1 rd. tsp.	= 15 gm.	= .60	4.8		25
1 level tsp.	= 10 gm.	= .40	3.2		16.8
1 heaping tsp.	= 18 gm.				
1 rd. tsp.	= 8 gm.				

CORN SYRUP.

1 oz. by volume = 33 gm. C.H. = 136 Cal.
45 cc. corn syrup+55 cc. water=50 gm. C.H.=205 Cal.

COTTAGE CHEESE.

Cheese from 1 pint of skimmed milk contains 15 gm. protein and 60 calories. 1 pint makes 3 rounded tablespoonfuls.

DIAPROTEIN MUFFINS.

Recipe = 1 measure diaprotein flour (15 level tablespoonfuls)
1 egg
2 level tablespoonfuls of bacon fat
3 tablespoonfuls of water

This makes 6 to 8 muffins and equals 460 calories. 1 muffin = 65 calories if 7 muffins are made from the above recipe.

If no fat is used, the batch of muffins contains only 184 calories.

The best starch to add is rice jelly or zwieback, and in cases with poor starch tolerance one should be in no hurry to add it. If the child is doing well, it is best to let him go along for a considerable period, often several months, without any starch whatever. One of the first to recognize this important principle of an absolutely starch-free diet over a long period of time, or at any rate to write anything about it was, as far as I know, Dr. Philip Sylvester of Boston.*

Fat is added by working in a few ounces of whole milk instead of an equal amount of skimmed milk, but if much of this tends to come

*For his original paper, see the BOSTON MEDICAL AND SURGICAL JOURNAL, Aug. 26, 1920.

through in the stools, it must be again omitted.

Of the three vitamins A, B, and C, there is probably a sufficiency in this diet, with the possible exception of the fat-soluble A.* Despite this, the lack of this vitamin in such a diet seems to do no harm, and I know of one child who has been on such a diet for a year, and who has done remarkably well.

The fat-soluble vitamins can be furnished by a small amount of spinach purée if the child can handle it well, but as a general thing it is better to leave this out. Or the same thing can be supplied by the yolk of an egg.

Cod liver oil is, of course, a most potent source of this vitamin, and if one is afraid of vitamin deficiency, a half teaspoonful of cod liver oil three times a day will insure a sufficiency of fat-soluble A. An adequate supply of water-soluble B and C is probably furnished in the large amounts of milk taken.

The course of this disease, if the case is a severe one, is long, and even under the best conditions, progress is slow, and occasional relapses certain.

At the onset of a relapse the bowels should be cleaned out with a good-sized dose of castor oil, the child should be put to bed, and nothing given to eat but milk. These relapses are inevitable, and need not cause discouragement. A slight pharyngitis, the cutting of a tooth, getting overtired or overexcited may be enough to excite diarrhea, and to cause a considerable loss of weight in a short period of time.

To sum up: a disease, the essential nature of which is probably an infection of the contents of the small intestine with organisms which should not be there, this infection being usually caused in the first place by overfeeding with too much solid food at too early an age, or by an acute attack of diarrhea. The basis of treatment is a low starch and fat, high protein diet. Nothing whatever in the way of results can be accomplished without considerable painstaking study of each individual case.

SCHOOL CHILDREN AND SPINAL CURVES.

BY E. H. BRADFORD, M.D., BOSTON.

THAT our school girls carry themselves badly is an admitted and regrettable fact. It is doubtful if school gymnastics conducted as they must be, are adequate to give desirable results. Posture classes may induce strong-backed children to attempt to stand straight, but the weak-backed will continue to take faulty attitudes as long as their backs are weak. As faulty attitudes in children threaten to develop into fixed spinal curves in adults, every well-wisher of the race is prompted at every school exhibition or assembly



FIG. 1.—X-ray of fetal full term trunk showing the large amount of intervertebral cartilage.

of school children to demand more effective measures to correct the many flat-chested and round-shouldered individuals of the rising generation; yet the difficulty of the undertaking and the uselessness of inadequate efforts check the efforts of critics.

Curves of the spine in school children can be grouped into certain definite and easily distinguishable classes, requiring different measures for their correction, viz.—

1. Faulty habits of attitude in normal children.
2. Curved and sagging spines in children with weak spinal and trunk muscles.
3. Spinal columns with fixed faulty curves.
4. Twisted spinal columns.
5. Noticeably distorted figures.

Methods of treatment of curved spines in young, growing children, must differ from those employed in adults or even adolescents.

Deformities, *i. e.*, deviations in growing bone, tend to correct themselves if suitable conditions are furnished—nature favors growth to type.

Methods of treatment demanding rigid gymnastic exercises, class setting up drill, are with difficulty made effective with young children, whose muscular ambitions are not as fully developed as in later adolescence or young adult life.

In the days of rigid parental discipline, children who sat and stood badly were made to sit in straight-backed, shallow-seated chairs and lie on an ironing board and were roundly taken to task for slouchy attitudes. In these later days

*Skimmed milk contains a not inconsiderable quantity of the fat-soluble vitamins.



FIG. 2.—Fetal trunk opened in front with pins inserted in the vertebral bodies showing the amount of possible side flexibility without rotation of bodies.

the example of the past may be followed to the extent of recognizing the fact that the environment is of prime importance in securing good carriage.

The slouchy, flat-chested plebe becomes, after a few months at West Point, noticeable for his erect figure—the drafted civilian holds himself much better after a well drilled service than in civilian life—and it is to improvement in home as well as school habits of the young, growing child, that importance must be paid in the hope of avoiding crooked backs in young children.

If it is remembered how much each day of the time of the active life of a child is passed in chairs, the importance of proper seating cannot be overlooked. Recognizing the more erect carriage of children among the chairless races than among our better furnished people, the inference suggests itself that in many instances curving spines may be a chair back deformity, and that in the early preventable stages low stool sitting, reading and writing at tall desks, combined with resting a tired back on a hard, flat surface, may be corrective home habits.

The school furniture problem cannot be said to have been satisfactorily met and the fact that school desks and chairs must be, to a large extent standardized to meet school regulations and marketable conditions, presents a difficulty not easily overcome. Perhaps the only way at present that is practicable is to arrange for frequent interruptions in the seated time in school hours with frequent setting up exercises. At home, reclining boards, low stools and standing desks and active hard play present a possibility of improved home conditions. An arrangement of this sort might be adopted in small, unconventional schools, but the necessary change would be too radical for adoption in large, firmly organized schools.

When evident muscular weakness is present,

attention to the need of improvement of muscular strength is evident; class gymnastics, physical culture drills are all of importance, but the value of daily home exercises is not to be ignored. In fact, it may be regarded as of the utmost importance. In by far the greatest number of cases effective home exercises can be satisfactorily carried out. Where curved spines are under consideration, attention must necessarily be turned to strengthening those muscles used in holding the trunk normally, as well as to correcting curves. It is a noticeable fact that all people accustomed to carried weights upon their heads are erect. Head weight carrying if possible as a daily home exercise, naturally suggests itself as a useful daily exercise. This is easily arranged if sand bags of different sizes and weights are used at home at stated times both for children seated and walking. Other dumb bell or weight and pulley exercises can be made use of. In weak children exercises should be limited to suit the child's condition and should be accompanied by periods of regulated rest.

In weak-muscled children, it can be expected that as the muscular strength improves there will also be an improvement in carriage if no abnormal conditions in the spinal column have been developed. But where faulty habits in attitude have become firmly established, in many instances more than daily directions as to improved posture will be needed. A constant corrective device is needed to restrain from dropping the head or shoulders forward, dropping one shoulder.

These should not be so constantly used as to weaken muscles or establish reliance upon these artificial measures, but daily for a sufficient time to give the patient a sense of a better attitude. Such checking shoulder and neck straps should be simple and adjusted with little difficulty.



FIG. 3.—The same, showing the amount of rotation in downward pressure exerted on the spinal column.

A serviceable arrangement of this sort can be made with webbing. If a loop of inch wide webbing, sufficiently large to include the shoulder blade, be applied to each shoulder with the attached webbing long enough to be crossed behind and again across the abdomen and buckled around the hips, the shoulder blades can be drawn back whether the patient is sitting or standing. If to these loops a webbing strap is attached, passing around the front of the neck, the head and neck cannot be bent forward without discomfort and are held erect. Where the spinal column sags in the dorso-lumbar region and there is a marked hollow back, forward pressure is necessary on the sacrum and upper part of the spinal column with back pressure on the abdomen, while the shoulders are held back and the neck kept from bending forward.

This can be accomplished by a simple arrangement. Two strips of steel are fastened together in the shape of a cross, the short cross piece to extend across the shoulders at the level of the axillae. To the top of the upright arm of the cross can be fastened a band of ribbon or webbing which can be tied around the neck. To the end of the cross arms is attached webbing long enough to pass around the shoulders, crossed in the back, to be buckled in front to a square piece of leather or canvas placed over the abdomen. The bottom of this abdominal piece is secured by straps coming around the lower part of the trunk from the lower of the steel upright. The abdominal cloth can be kept from rising by garter supporters or by attached webbing straps passing around the thighs.

The patient can with this arrangement be kept

for a required portion of the day in a proper position.

A different arrangement is needed if the faulty position is one with dropping of one shoulder, the projection of a shoulder blade and of a hip.

A light stiff upright should be made, long enough to reach from the middle of the cervical region to the lower end of the spine and well on to the sacrum. At the level of the axilla of the dropping side or somewhat above this, a cross piece should be attached at the end of which should be secured a piece of webbing attached at its upper end to the cervical end of the steel upright. This webbing loop should be sufficiently long to allow the arm to pass through it. The lower end of the upright should be furnished with a webbing strip which will pass and be buckled around the thigh and groin on the side opposite that of the dropping shoulder. A strip of canvas three inches wide, should be attached to the upper end of the upright, pass around the projecting shoulder blade, around the trunk in front to be secured by straps and buckles to a similar canvas band passing around the hip on the side of the dropping shoulder and attached to the bottom of the upright.

If this appliance is properly adjusted, correcting pressure will be made on the projecting shoulder blade as required, the dropping shoulder raised and the side bend of the spinal column checked.

It is understood that these appliances are not to be worn constantly, but are to be used at such portions of the day when a slouching position is less easily corrected by muscular trunk action, when rest is not feasible and the patient is less vigorous in efforts for self correction.

The spinal column of the infant is flexible in many directions, even allowing twisting to a considerable degree. After weight-bearing has come to the growing child as a part of the function of the spine in the erect position, physiological curves develop in the need of the requisite balancing of the head while the body is moved and the pelvis shifts in its inclination. As attitudes become constant, these curves become to a degree fixed from adaptations in the shape of the ligaments, fasciae, cartilage and bones. If faulty attitudes are too constantly assumed, faulty curves from abnormal stiffness in portions of the spinal column and abnormal twists. In addition, the ribs, sternum and vertebrae connected with the spinal column, being subjected to abnormal muscular strain, may become abnormally shaped. This is especially true if for any reason the bony tissue is structurally below normal resistance, as in the condition. Abnormality of the bones may exist in rarer cases congenitally, or from early abnormalities in growth. When these exist, more thorough treatment is needed than can be furnished by muscular exercises, rest, or checking appliances.

Evidently the period when treatment can hope to be successful is during more rapid bone

growth. Feasible measures of corrective pressure can alter the shape and position of twisted ribs and to a degree the adherent vertebrae in the same way that the Flat Head Indians alter the shape of their skull, or the Chinese that of the bones of the foot.

The question of the extent and thoroughness with which correcting pressure can and should be applied in each individual case is one of judgment.

There is also the need in some instances of shortened ligament and fascia stretching, needing different methods and exercises from those required in muscular development. This fact is recognized in the training of circus performers and tumblers and it is an art in itself.

These methods may be classed as (1) intermittent, (2) constant pressure or pull, and (3) stretching exercises with the opposing muscles relaxed. The laws of growth are little understood, but there is undoubtedly a strong tendency of bone to grow to type.

This should be recognized by physicians in the management of young children. The underlying causes of deformity should be investigated and conditions favoring the normal secured.

There are two common causes favoring faulty attitude: (1) clothing which restricts the normal play of the trunk and shoulder muscles, and (2) chairs in which lounging or incorrect attitudes are habitually assumed. As in all households the chairs generally used are adult chairs and if habitually used by children for a considerable portion of the day, faulty positions of the spine are constantly assumed and may become habitual and are not to be overcome by a few exercises practised a few times a week.

Loose clothing with freedom from drag upon the shoulders is necessary as well as restriction of the time spent in unsuitable seating.

These methods may supplement or take the place of other measures already mentioned and should be used with due consideration of the physical needs and rights of the child for ordinary content and comfort.

According to the gravity of the curves in their threat of increasing deformity, correction should be by means of a constant or intermittent correcting force and should vary in degree of the pressing or pulling force.

In the most threatening cases, comparatively rare in young children, correcting force should be applied to the patient in a recumbent position. Correction of the curves of the spine are more easily effected when the superimposed weight is removed. Recumbency can be borne for a longer time without discomfort than suspension and is therefore to be preferred when corrective methods are undertaken.

If the trunk of a full term foetus be dissected, permitting an inspection of the movements of the spinal column under varying conditions, it will be seen that curvature with rotation can be produced by pressing the neck down toward

the pelvis, provided the spinal column as a whole is not permitted to curve backward. It will also be noticed that side bending is possible to a considerable extent without a twist in the column owing to the elasticity of the cartilaginous intervertebral tissues.

Under certain conditions of crowding of the vertebrae with side bending, characteristic scoliotic curves are developed. These can be corrected by suitably directed correcting pressure or a pull and removing downward pressure.

In fully developed adult scoliotic spines the amount of force needed for correction would be great. In younger cases the amount of force would vary according to the extent and degree of the curves but the principle of the correction would be the same.

This consists both of side pressure upon the points of greatest convexity of the curves and counter-pressure at the opposite parts of the curved trunk.

In flexible foetal spines, direct pull upon the column, forced backward or forward bending, will obliterate the twist, but this effect is not so easily produced in developed curves. In these, direct pull upon the head or pelvis may change twists in the cervical and low lumbar regions unless structural changes have become pronounced, but in the dorsal regions this result is not to be expected. For correction of rotation correcting pressure on the ribs must be employed to overcome the spinal rotation. Manifestly all downward pressure on the upper part of the column must be removed if rib correcting pressure is to be effective. A combination of side pressure and counterpressure with front and back pressure and to an extent, direct traction with countertraction or recumbency are all needed in complicated curves. If enough force could be applied in these directions and borne, every spinal curve could be corrected, and by the same reasoning it may be expected that the less resistant curves can be so corrected. All that is needed is the suitable application of correcting force.

Correction must, in growing bones, be applied constantly and persistently for a long period to check continuous perversity in growth. This necessitates home treatment daily applied by means of appliance of easy adjustment and simple construction.

If a child lies on a board, either flat upon the floor or for the child's greater convenience, on a board raised at one end, and a short board pressed upon the front of the thorax, pressure to any desired extent can be made upon the distortedly rotated ribs by connecting the two boards at the sides by straps. The areas of pressure can be farther regulated by thick, firm pads placed on the areas needing pressure. A head-pulling sling and side-pulling straps attached to weights can be added to act upon the curves and to reduce downward pressure. The plane and angle of the pelvis can be changed by

flexing or straightening the thighs and by exerting a pull on one or the other of the legs if the limbs are kept straight, or if the thighs are flexed by attaching to the reclining board a seat on which the buttocks rest which can be made by suitable adjustment to exert more pressure on one buttock than the other.

The degree to which the correcting forces are to be exerted is a question to be decided in each instance. This recumbent correcting treatment can be made less tedious if the resting board be inclined so as to permit reading.

When intermittent correction seems inadequate and constant correcting pressure is needed and when the patient is about and also when in bed, correction can be exerted by means of a bivalve corset of celluloid or stiffened leather made from a properly applied plaster corset reaching from the neck to the pelvis and exercising correction on the spine as far up and as low down as possible.

Care and skill are required in the making and adjustment of this corset that there may be a minimum of discomfort and disfigurement when it is worn. This corset being removable and its pressure adjustable, its use is compatible with muscular exercises and free activity, according to the needs of the case.

As treatment to be effective must be protracted, the means employed should be as simple as possible suited for the capabilities of domestic nursing.

They need, however, careful and observant medical supervision at stated times to direct changes in methods used to note accurately improvement or the reverse.

If the spinal column is abnormally stiffened in its curves in any part of the spine and not flexible to any muscular contraction, it cannot be considered as rational treatment to attempt to strengthen the muscular group in question until the respective portion of the spine is restored to its normal flexibility. This, if due to ligamentous shortening, is to be accomplished by ligament stretching and not muscular exercises. Muscular exercises of the trunk or thigh muscles may be beneficial at all times, but should be carefully directed that they may not develop the muscles already sufficiently strong without benefiting those weakened owing to an abnormally stiffened spine. A safe rule in these cases is that all muscular exercises should be taken with the spinal column in as nearly a corrected position as possible.

In watching chronic cases of the nature of spinal curves when changes are necessarily gradual, it is necessary that the surgeon directing treatment should have more accurate data of the state of the curved spine than that furnished by his own recollections of the observed condition several months before.

Variations from the normal side flexibility curves can be used to indicate the portion of the spine needing treatment for overcoming local-

ized abnormal stiffness and the amount of success following measures used in treatment, giving greater precision to the surgeon's method and greater definiteness to his judgment.

It would be, if practicable, desirable to publish in a statistical form, or by more definite before and after treatment presentation of cases, the results of many years' experience in the treatment of spinal curves by different methods, but by the nature of the case the long chronicity of the affection, the unknown factor of natural improvement, and the many circumstances which check the benefit of treatment, statistics possible in the results in operative surgery are less trustworthy if dealing with spinal curves.

To any one who has studied the subject and witnessed the great increase in the knowledge of the subject in the last forty years it is evident that the surgical world has passed through the period of clumsy and futile treatment of little understood distortions to a stage where definite improvement can be expected to follow persistent rational corrective measures. The advantage of effective and not too irksome preventive measures in the curvatures of growing children is evident. When many treated cases have been watched from childhood to strong manhood or to motherhood there can be no doubt as to the advantages of proper corrective measures over expectant or spasmodic or ineffective methods.

Success can be expected in preventing the development of fixed curves in growing children threatened by faulty habitual attitudes, the checking of progress, and in some cases correction of already established curves.

With proper attention on the part of the parents, school authorities and physicians, it may be expected that future generations will have better carriage and straighter backs than are at present seen among school children.

SPINAL FLEXIBILITY.

BY E. H. BRADFORD, M.D., BOSTON.

If the spinal column from a dissecting room cadaver or if the vertebrae of an adult skeleton are articulated in such a manner as to simulate the natural condition, certain curvatures and limitation in the movement of the whole spinal column are to be observed. This condition of fixed curves or of restricted movement is not found to the same degree in the spinal column of a full term foetus owing in part to the greater cartilaginous structure in the bodies of the immature spine and the greater elasticity of the articular facets and ligaments. The foetal or new born infant spine may be said to have no curves and to be movable with considerable flexibility in directions which in adult spines meet resistance.



FIG. 1.—Contour tracing and tracing of lateral flexibility of spinal line in a normal child showing greater lateral flexibility to the left side.



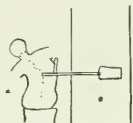
FIG. 2.—Contour tracing and side flexibility of the spinal line in an infantile paralytic showing change in lateral flexibility.



TRACER.

a. Levelling pendulum.

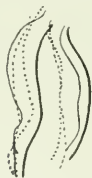
b. Block; hole for pencil.



TRACING; SIDE FLEXIBILITY.

a. Patient.

b. Board holding paper for tracing.



TRACING; SIDE VIEW.



TRACING; LATERAL FLEXIBILITY.

In the study of pathological curves a knowledge of flexible spines is needed.

If a full term foetal torso is examined it will be seen that the osseous structure of the verte-

brae of the spinal column is considerably less than in a developed spine, and the same will be found to be true in a growing child in extent corresponding to the osseous development. There will be a corresponding greater amount of spinal flexibility in the column in proportion to the amount of cartilaginous structure in the vertebrae. It is of interest and importance to determine the limit of normal side flexibility in the most flexible spine as well as in each individual case presented for examination.

If the thorax of the foetal torso is opened and the lungs and heart removed and pins inserted in the vertebral bodies, the amount of possible bending of the column without causing vertebral rotation, the most distorting strain on the column can be noted and also whether pressure on the ribs in the back will cause a twist of the column.

It will be seen that in a flexible spine pressure on the ribs on one side in the back will twist the spine at the corresponding portion of the column. It is also to be observed that in a straight spine twisting the column at either end



Lateral Curvature Brace and Spinal Straps (Front).



Lateral Curvature Brace and Spinal Straps (Back).

causes rotation at the end twisted, but not in the middle.

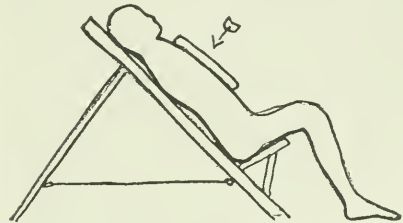
Furthermore, if the spine is arched backward pressure on the top of the column down toward the pelvic end does not cause vertebral rotation, while this pressure does if the spine is bent forward. Side bending does not cause vertebral rotation if the column is bent backward.

The significance of these facts in determining the causation of rotation distortions in the trunk is evident. A spinal column kept straight or bent backward does not twist from superimposed weight, while if bent forward there is danger if the column is overloaded of a twisting strain which, in case of structure inability to resist, will cause distortion if the strain is continuous, especially in the less flexible portions of the column less able to relieve themselves by backward bending, of constant distorting strain.

In cases of curvatures of children under observation it is desirable that the flexibility of the different parts of the column be examined and noted, as well as any abnormality in the spinal curves. Simple means of determining both the curves and the spinal flexibility are desirable,



Self-Correcting Stretching Exercise for Stiffened Curves.



Reclining Board with Front Pressing Board for Twisted Curves.

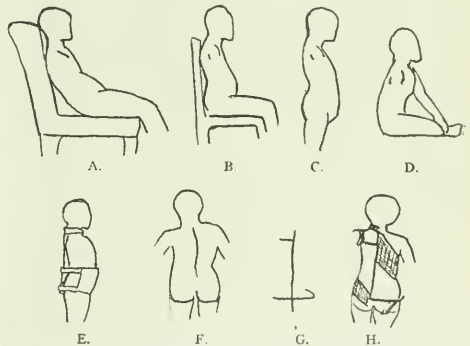


FIG. A, B, C, faulty sitting and standing attitudes; D, trunk contour in floor sitting; E, check-rim brace in round shoulders; F, lateral curve; G, light steel brace; H, spiral webbing and strap applied to give correcting pressure.

and can be furnished with sufficient accuracy. Various devices have been employed for tracing variations in the spinal lines, *i.e.*, the marked skin line over the projecting vertebral spines, as well as of the contours of the trunk. Simple arrangements for the purpose have evident advantages, and can be made by attaching a tracing pencil at one end of a short light rod in such a way that the pencil maintains the right angle position to the tracing paper and that the rod can be held at a level while the pencil is passed over the line to be traced, *i.e.*, the line of

the spines or any section or contour of the trunk. The pencil-holding end of the rod will mark a traced line on a paper pinned on a board at the side of the sitting, standing or stooping patient.

In tracing the sides of the trunk an accurate record can be made if the patient stands back against the board and the tracing pencil (placed in a holder to keep it at right angles to the tracing plane) is passed along the patient's sides.

There are several other methods of tracing back curves; the simpler one described appears to be the most generally serviceable. When the flexibility of the spinal column is to be noted the patient is bent to one side and the other alternately and steadily in the required position. Although antero-posterior tracings can be made and are important, yet in studying beginning or threatening twists the side flexibility seems of the most value as a premonition of possible rotation, through faulty weight-bearing. There will be found much variation not only in the lack of symmetry in the side motions in an individual, but also in the location of the centers of greater side flexibility in different individuals. These variations may in flexibility tracings be regarded as the result of variation in habitual attitude or variation in growth in children.

In many instances they may be within what may be called normal physiological limits. In others they may approach the pathological.

A study of the flexibility of the infantile spinal column compared with the localized restricted mobility in definite parts of the column in the adult is an aid to the investigation of the problem of the causation of spinal curves. To this should be added some knowledge of the changes in the skeleton as the animal develops from the quadruped to the biped. The spinal column in the quadruped is supported on four legs and is little exposed to the twisting side strains of ambidextrous, erect, moving man. The animal quadruped is also freed from the strain upon the column of the superimposed weight of the head and upper trunk. In the bipedal bird the symmetrical action of the wings prevents unequal side strains on the column and those of superimposed weight are diminished by the oblique inclination of the spine and the small size of the head. The quadrupeds are not erect and their arboreal activity hanging by the arms protect the column from distortion from superimposed weight.

In man as soon as he assumes the erect attitude, emerging from the infantile stage of creeping activity, the spinal column is exposed to strains not occurring in other animals, and for which the normal spinal column must become adapted in its skeletal form and its muscular and ligamentous strength and elasticity.

The sacral end of the spinal column is firmly attached to the pelvis and but little mobility exists at the articulation of the last vertebra and the top of the sacrum; forward and back or

side movements in the column take place at a short distance above in the lower lumbar region. In the quadruped the pelvis is roughly at an obtuse angle with the line of the spinal column. In the floor seated infant the pelvis would be at right angle with the spinal column, provided the spinal column was supplied with sufficient muscular strength to sustain the head and trunk weight without bending under the load. In the standing position, however, the pelvis inclines downward at the front, and this inclination pulls with it the last lumbar vertebra, giving a lumbar forward arching and a resulting compensatory curve above. The extent of these curves depends upon the muscular strength and the tensile power of the ligaments holding the vertebrae and the column to the pelvis.

The surgeon in examining and in treating spinal curves will find tracings as described of much assistance in determining the existing condition in a given case, the prognosis, and in the needed method of treatment.

THE ELECTROCARDIOGRAPHIC SIGNS OF CORONARY THROMBOSIS AND ANEURYSM OF THE LEFT VENTRICLE OF THE HEART.*

BY MORRIS H. KAHN, M.A., M.D., NEW YORK CITY.

IN order to understand the changes that take place in the electrocardiographic records of cases of coronary thrombosis, it is necessary, first, to set definite limitations to the normal electrocardiographic picture.

The electrocardiogram traces the course of the conduction current through the heart, beginning at the sinus node in the right auricle through the auricular wall, the a-v node, the junctional tissues, the bundle of His and its branches, and via this structure throughout the ventricular wall. This gives normally a characteristic picture.

First, comes an auricular wave, designated as "P," of an average duration of 0.12 of a second. Then, an iso-electric period follows; the conduction current reaches the ventricular muscle and gives rise to the Q R S wave, lasting normally up to 0.1 of a second. After another iso-electric interval, the T wave, which is considered to indicate the deactivation of the ventricle, takes place.

This normal picture may be influenced not alone by organic changes in the heart, but by functional changes as well. These may effect the sinus node, producing fibrillation of the auricle; the auricular wall producing auricular extrasystoles; the a-v node producing abnormal rhythm; the bundle of His producing heart block; or the ventricular muscle producing ventricular extrasystoles. These changes may also be due in part to organic causes.

* From the Department of Cardiovascular Diseases, Beth Israel Hospital, New York City.

A lesion at any point in the ventricular heart structure will affect either its irritability, conductivity, contractility, or rhythmicity. Affecting irritability, extrasystoles would result from the points of hyperirritability; affecting contractility, variations in voltage and alternation in the force of contraction might occur; and disturbed rhythmicity would give irregularity of the heart.

The important point in the differentiation is to ascertain whether the basis for the change is organic. Minute organic changes, unless they affect the conduction mechanism of the heart, we are not yet able to discover with certainty. When the changes are such as would result from coronary thrombosis, they are more or less distinctive and amenable to careful analysis of the electrocardiogram.

For a better understanding of these changes, it is desirable to be acquainted with the main vessels of supply to the heart itself.

The heart is supplied by the right and left coronary arteries arising from the sinuses of Valsalva just above the semilunar valves. The left coronary artery is the more important, being the more likely to thrombose or occlusion. It courses in the left ventricular groove to supply the anterior wall of the left ventricle, the anterior papillary muscle and the left half of the thickness of the interventricular septum. Its circumflex branch turns posteriorly in the auriculo-ventricular groove supplying the posterior wall of the left auricle and of the left ventricle, the posterior papillary muscle and part of the septum. The right coronary artery runs along the right or posterior interventricular groove and supplies the right ventricle over its main extent. Its circumflex branch continues forward around the right side of the heart, supplying the right auricle.

From a practical clinical standpoint, we may consider the coronary endings as terminal arterioles. Though the capillaries may anastomose slightly when a coronary branch is occluded, the anastomoses are not sufficient to maintain such adequate nutrition of the heart as to prevent the development of symptoms.

The changes that can occur when the coronary vessels are occluded are those of anaemic infarction and necrosis. At first, such a lesion is distinctly inflammatory and, therefore, a source of irritation to the heart muscle, producing hyperirritability of the heart at that point. This would result in premature beats or a series of premature beats producing paroxysmal tachycardia. As a matter of fact, coronary thrombosis is very often followed by an attack of paroxysmal tachycardia, as will be illustrated by one of our cases to be reported.

The lesion continues to progress with destructive changes, increasing the difficulty for conduction.

When these changes involve the special fibers of conduction, a certain degree of blockage to the conduction current takes place in the ven-

tricular muscle. In the electrocardiogram, this is manifested as an increase in the Q R S period, which may extend to 0.2 of a second; *i.e.*, the conduction current, not finding a clear course through the branches of the bundle of His, must traverse the ventricular muscle and its connective tissue, and the latter offer much more resistance than the specialized fibers. This increase in the Q R S period becomes a significant feature of the electrocardiogram in coronary thrombosis.

The degenerative changes continue. If the coronary thrombosis involves the apex of the heart, as it frequently does, connective tissue may entirely replace the muscle with thinning and dilatation of the ventricular wall. This produces a not very uncommon lesion, an aneurysm of the wall of the left ventricle. Aneurysm of the left ventricle, therefore, being commonest at the apex of the heart, will give a more or less distinctive picture in the electrocardiogram.

Low voltage with preponderance of the left ventricle and slight widening of the Q R S wave, and these features progressing with the progress of the lesion, are the findings in this condition.

There is not that extensive notching of the Q R S wave or the high voltage as takes place in lesions involving the septum itself.

Extrasystoles may occur in this condition, depending upon the progress of the lesion in the boundary zone of the aneurysm where it joins the normal tissue.

The "T" wave also shows quite characteristic changes with thrombosis of the coronary artery. Experimentally, ligation of the descending branch of the left coronary artery produces characteristic alteration in the "T" wave. Immediately following the ligation, the "T" wave becomes more prominent, varying in height with the size of the ligated branch. It then becomes sharply negative and, after several days, it gradually becomes positive again, first in lead III and last in lead I. After a number of weeks, it again becomes iso-electric or negative and remains so until death. These changes are undoubtedly associated with the progress of pathologic changes in the infarcted area.

This change of the "T" wave from a strongly positive peak to a markedly negative one, and then a slow return to the positive or iso-electric form is so characteristic experimentally that similar changes in the wave in man may reasonably be supposed to be due to similar lesions in the left coronary artery.

It is, therefore, important in cases of suspected coronary thrombosis not to confine oneself to a diagnosis from a single record, but to take records repeatedly. What may be found more important than the analysis of a single record is the variation in the electrocardiographic picture with the progress of the lesion.

Ventricular extrasystoles and paroxysmal tachycardia early in the cases, with blocking of the conduction current in the ventricular muscle and progressive changes in the "T" wave are

the possible pictures in coronary thrombosis. These can be illustrated, in brief, by the following three cases and their electrocardiograms.

REPORT OF CASES.

CASE 1.—S. Z., Russian, aged 58 years, complained of dyspnoea on exertion of five to six months' duration and cough and expectoration. He had severe cardiac pain and an attack of paroxysmal tachycardia, for which he was admitted to the hospital.

The physical examination showed slight congestion of the pulmonary bases and marked dilatation of the heart to the anterior axillary line. Its action was extremely rapid and regular. The respirations were labored, 36-40 per minute, and the temperature was slightly elevated.

Laboratory Observations.—The urine showed a considerable amount of albumin. The Wassermann test was negative. The blood showed 10,000 leukocytes and 76% polynuclears. Pericardial fluid aspirated contained 60% polynuclears and 40% mononuclears.

Polygraphic Studies.—The jugular wave was of the venous type, as is usual in paroxysmal tachycardia. The radial showed distinct pulsus alternans.

Electrocardiographic studies were made repeatedly and showed left ventricular preponderance and paroxysmal tachycardia of ventricular origin. The rate was 168. Moderate ocular pressure did not affect the heart mechanism. (Fig. 1.) Roentgen ray studies revealed a marked

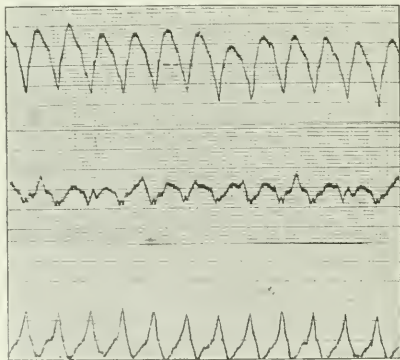


FIG. 1. Paroxysmal tachycardia of ventricular origin due to coronary thrombosis. (Case 1.)

enlargement of the cardiac shadow, especially the left ventricle.

CASE 2.—Z. M., Austrian, aged 51 years complained of shortness of breath and was seized with pain over the upper portion of the abdomen, which radiated to the chest and which was accompanied by marked dyspnoea.

Physical examination showed the heart enlarged to the left. The apex was in the sixth space. The sounds were weak and of poor

muscular quality. There was evidence of marked mitral and tricuspid regurgitation. There was prominent pulsation of the veins of the neck, and the liver was also felt pulsating just above the level of the umbilicus. Respirations were labored and the pulse was weak. Effusion into the right chest showed signs of right failure.

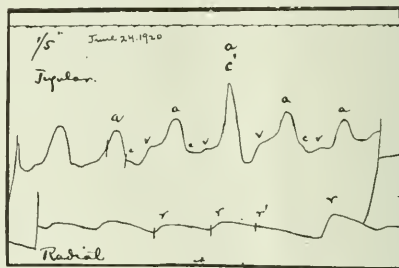
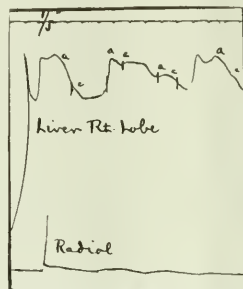


FIG. 2.—Polygraphic tracings of the radial with pulsating liver (above) and radial curve (below). The hepato-gram shows the ventricular form of liver pulse (tricuspid regurgitation). The phlebo-gram presents the normal sequence of waves, a, c, v, with perhaps increase of the a-c interval. The fourth cycle in the jugular tracing is a nodal extrasystole with superposition of the auricular and ventricular waves; this is followed by a complete compensatory pause.

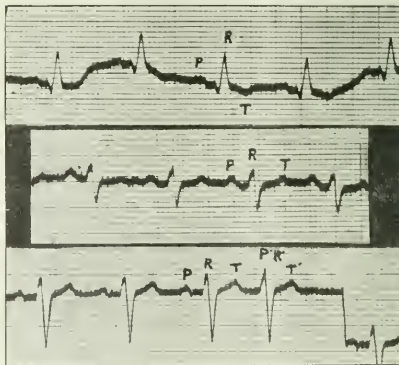


FIG. 3. Case 2. The voltage is a little less in this record than before. The T wave in lead III is upright in this figure, but it became negative later. A nodal premature beat is shown in lead III.

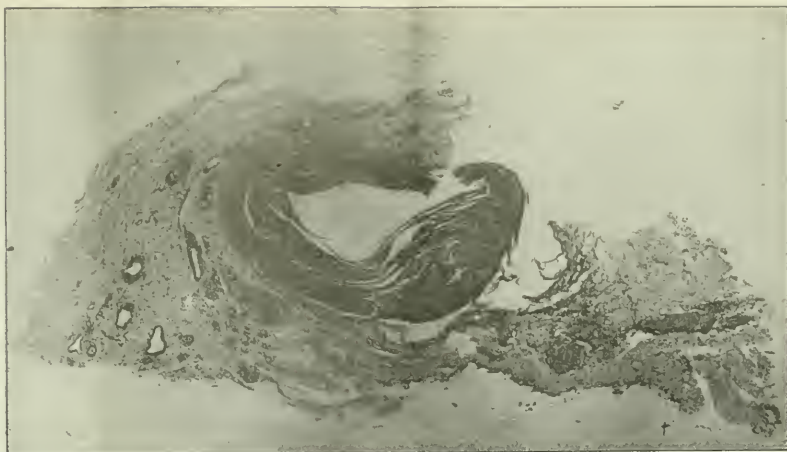


FIG. 4.—Descending branch of the left coronary artery in Case 2 near its origin. It was calcareous deposits and thickening of the wall.

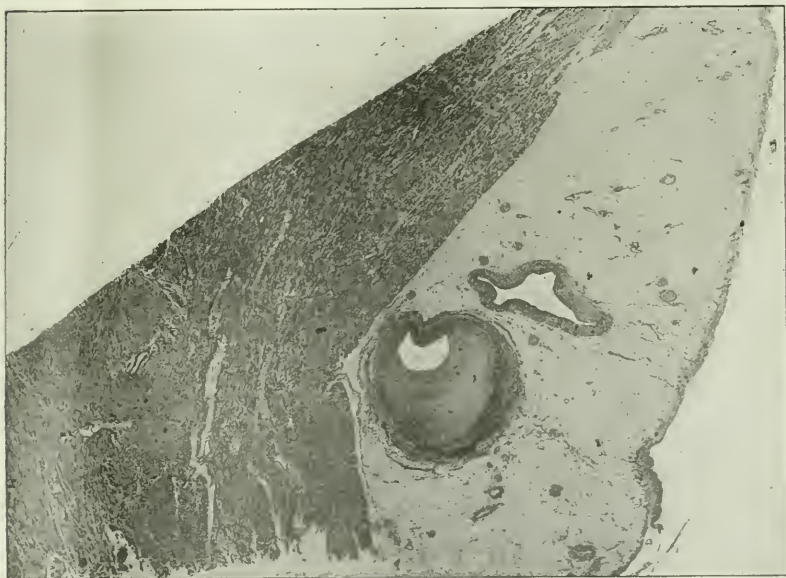


FIG. 5.—Almost complete obliteration of the lumen of the descending branch of the left coronary artery in Case 2, due to thrombosis.

The patient died with sudden cardiac exhaustion four months after the onset of the symptoms.

Laboratory Observations.—The Wassermann test was negative. The blood showed a slight secondary anemia and a slight leucocytosis of between 9,200 and 13,600 cells per cu.mm.

Polygraphic studies showed tricuspid regurgitation and pulsating liver, and also occasional ventricular premature beats. (Fig. 2.) Electrocardiographic studies repeatedly showed left ventricular preponderance and low voltage in all three leads, which became still lower before the patient died. The Q R S wave was notched

and widened in all three leads to 0.12 of a second; this was most evident in lead II. The "T" wave was inverted in lead I throughout and continued from the "S" phase without any iso-electric interval. Toward the end, it became less distinct and almost iso-electric in leads II and III. There were occasional bundle and nodal extrasystoles. (Fig. 3.) Autopsy findings revealed a much enlarged heart, with an old patch of pericarditis. The wall of the left ventricle was very thin and gradually tapered down to the apex, where the wall was only about 1 mm. thick. Here the muscular tissue was almost completely destroyed. Large plaques of firm connective tissue were visible throughout the wall, and especially on the septum. The mitral and tricuspid valves admitted three fingers easily. The coronaries showed partial obstruction, with calcareous deposits on the wall. (Figs. 4 and 5.)

CASE 3.—R. N., woman, 46 years of age, who complained of dyspnoea and sticking pains in the chest, especially on lower sternum. She appeared extremely weak; her face showed a peculiar sallow leaden pallor and an expression of anxiety and suffering such as is commonly seen in angina pectoris.

The physical examination showed neither enlargement of the heart nor murmurs at first, but the sounds were feeble. The respirations were labored, and bilateral pleural effusion developed.

Sudden death occurred five months after the first symptoms.

Laboratory Observations.—The Wassermann

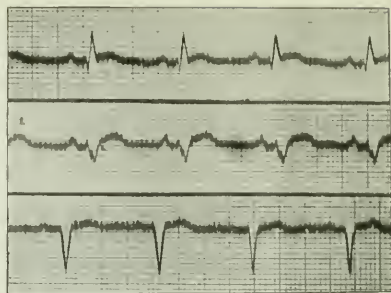


FIG. 6. Case 3.—The Q R S wave here shows increased notching and thickening in lead II, with increased widening to 0.12 of a second. The T wave is less prominent than before, is almost iso-electric in lead I, but shows the same peculiar S-T transition in all three leads. This record shows greater voltage and greater predominance of the left ventricle than before.

test was negative. The blood showed a moderate degree of secondary anemia and a slight leucocytosis; at first, 10,000 leucocytes per cu. mm., and towards the end, 16,800 to 20,800 per cu. mm.

Electrocardiographic studies showed very low voltage and preponderance of the left ventricle, which increased with the course of the illness. The Q R S wave was slightly notched, thickened and widened, and became more distinct with the progress of the lesion. The "T" wave was at first inverted in lead I and fell directly from the descending or cataerotic arm of "R" before the latter had reached the iso-electric level. Later it became less prominent and almost iso-electric



FIG. 7.—Section of descending branch of left coronary artery in Case 3 near its origin, showing a mural thrombus with beginning organization.



FIG. 8.—Section of descending branch of left coronary artery in Case 3 in its course, showing the extension of the thrombus murally into the branches of the vessel (one to the right and one to the left).

in lead I. Throughout, the electrocardiograms gave evidence of rapidly progressing myodegenerative changes in the left ventricle. (Fig. 6.)

Autopsy findings revealed an enormous heart and shaggy pericardium as a result of old tough lesions. The right ventricle occupied a comparatively small area, but the left ventricle was enormously dilated. The apex wall had been thinned to the thickness of blotting paper. The endocardium had been undermined by dissecting thrombus and the apical muscle was completely transformed into connective tissue. A huge, ovoid, laminated, hard white clot firmly attached to the septum almost completely occupied the ventricular cavity. The aortic ring showed marked atheroma.

The coronary artery admitted a medium-sized probe for a distance of $2\frac{1}{2}$ cm. Beyond

that, the anterior or descending branch of the left coronary was completely occluded. (Figs. 7 and 8.)

COMMENT.

These cases, corroborated by autopsy findings serve as examples of the effects of sudden and progressive occlusion or thrombosis of the coronary artery. In the first case the infarction was acute and the myocarditis terminal. In the last two cases, the myocarditis was a rapid, progressive, degenerative condition with the formation of aneurysm and autopsy findings of great interest.

Two of these cases are included elsewhere in a clinical discussion of the subject of "Aneurysm of the Left Ventricle."¹ They are here given in their special relation to the electrocardiographic signs of coronary thrombosis.

REFERENCE.

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THE ROENTGEN RAY TREATMENT OF ACNE VULGARIS.*

BY RUDOLPH JACOBY, M.D., BOSTON.

A SURVEY of the most recent literature shows that in the opinion of most dermatologists and roentgenologists the Roentgen rays constitute practically a specific treatment for Acne Vulgaris.

There are a number of clinical varieties of Acne Vulgaris, and a knowledge of the effect of

roentgenization of the various types of the disease is necessary in order properly to select patients for this treatment. It is of equal importance that modern apparatus and technique be used, and that a thorough knowledge of the biochemical and biological effects of the Roentgen rays be possessed by the operator.

All types of Acne Vulgaris have certain features in common. The disease is most commonly encountered at or about the age of puberty. It is very common in adults. The site of predilec-

*Read before the Aethan Club, Boston, December 17, 1921.

tion is the face, although it frequently attacks the back, the back and sides of the neck, the chest, shoulders, and arms. The disease is an inflammatory condition occurring in and around the sebaceous glands, and is characterized by comedones, papules, pustules, and nodules.

The predisposing causes of acne are varied and many, and, as Martin aptly states, it may be produced by almost anything from indigestion to a state of exalted self-consciousness. However, the actual cause is the *Acne Bacillus* which is invariably present in all acne lesions. This bacillus was first described and named by Unna in 1893.

Most investigators believe that the earlier lesion, that is, the small papule, results from the infiltration of plasma cells, giant cells, mast cells, and fusiform cells about the outlets of the sebaceous glands. As the infiltration continues and the entire gland and later the hair follicles are surrounded by the infiltrating cells, a large papule and finally a tubercle are formed. At times several glands and follicles may be involved in one lesion.

When suppuration sets in, leucocytes appear and the glandular structure is destroyed. In some cases the destructive process also involves the hair follicles, and small dermic abscesses may be formed. Semon states that a periglandular fibrosis occurs that is often exceedingly dense. This fibrosis, he feels, protects the bacteria lying within the glands from the action of vaccines.

Of the more common varieties of acne, namely, comedo, acne papulosa, acne pustulosa, acne erythematosa, and acne indurata, only the erythematous type does not well tolerate roentgenization.

It is neither necessary nor advisable to treat every case of acne with the Roentgen rays. The proper application of various internal and external remedies, together with hygiene, will suffice to cure a great many of the cases. However, these cases may be regarded as too trivial to make Roentgen therapy necessary. In the more severe cases it is difficult to obtain the complete cooperation of the patient in carrying out the campaign of home treatment. Details are neglected, and if improvement does not occur rapidly the patient is apt to become discouraged and frequently makes the rounds consulting other physicians in hopes that an easy and quick method of cure may be found.

The Roentgen rays, if properly applied and combined with other means of combating the disease, offer a treatment that is associated with safety and prompt and permanent cure. Roentgen therapy obviates the necessity of using local remedies that are temporarily disfiguring and troublesome, and it usually effects a cure in three to four months, providing that the patient receives proper advice and treatment. The percentage of cures reported is very close to ninety per cent., and the percentage of relapses, which are very amenable to treatment, are small, probably not greater than five or six per cent.

In 1896 Ullman reported the first case of acne vulgaris cured by the Roentgen ray. A few more cases were reported between this time and 1900, immediately following which numerous reports began to appear in the literature. Many of these references are given by Pusey and Caldwell.

In these early days the dosage varied amongst the investigators from large erythema doses to the small divided dose. The results were very variable, and many accidents, serious complications and sequelae followed. This was in the days of the cranky gas tubes in which accurate control of constant quality and quantity of the x-ray was impossible.

Within the past six years, due to the pioneer work of MacKee and others, the development of the Coolidge tube and standardized apparatus, a technique has been developed which in competent hands is safe and effective.

Satenstein and Remer in their work on dosage from the pathologic point of view have found that normal tissue elements are more resistant than the pathologic. They state that the resistance varies according to the age of the person, the part of the body, and the type of tissue of which they are a part. The intensity and duration of the response of the cells to Roentgen rays are in proportion to the degree of their resistance, that is, the response is most intense and of longest duration in the cells of least resistance. After Roentgen ray exposure, the resistance of all cells is influenced, and their activity is proportionally affected. The more resistant cells recover in less time than those of less resistance. If the interval between the exposures is sufficiently long, all the cells will recover. After the second exposure, the activity of the cells that have not fully recovered is more readily affected, as their resistance has already been influenced. With each successive exposure the resistance is more and more influenced and the activity is proportionally less and less maintained. When the cumulative effects at the point of saturation are reached, the cells become non-resistant and inactive. (The rapidity with which the point of saturation is reached depends on the character of the cells and the intensity of the exposures). At this stage involution sets in, that is, the non-resistant and inactive tissue elements are unable to withstand the action of the local tissues assisted by the body's protective forces, and are absorbed. If involution is within bounds, normal absorption results, otherwise atrophy or ulceration may occur.

As the intensity and the duration of the response to the Roentgen ray are in proportion to the resistance, the pathologic cells will not have recovered to the same degree in the same time.

Chronic inflammatory tissues are characterized by the presence of fibroblasts (connective tissue cells). They are more resistant and less readily influenced than the lymphocytes (round cells) which characterize acute and subacute inflammatory tissue. Therefore, the best results to be

obtained in chronic inflammatory tissues is by the use of fractional doses.

As it is never the agent, but the response of the living cells to the agent that is responsible for therapeutic results, the least amount of rays necessary to produce these results in any given tissue should be employed.

In treating acne vulgaris by Roentgen ray, a standardized apparatus consisting of an interrupterless transformer, rheostat control, standard Coolidge tube, Coolidge transformer and control, and a milli-ammeter must be used. The dosage is measured in skin units. The experiments of Remer and Willoughby show that a three-inch spark gap and three milliamperes of current given for four minutes at an eight inch distance delivered the amount of ray corresponding to four Holzknecht units; namely, four numbers on the Holzknecht radiometer.*

Four Holzknecht units, that is, four numbers on the Holzknecht scale, correspond to one skin unit, which is a sub-erythema or epilating dose. On the basis of their experimentation they devised a formula which has become known as the national formula for cutaneous therapy. The strength of the ray varies inversely as the square of the distance.

The present accepted technique in the treatment of acne is to give fractional doses of one-quarter skin unit (one Holzknecht unit) weekly for from ten to sixteen treatments. This number should be used even though all symptoms have disappeared following only a few treatments. It is very seldom that patients cannot tolerate this dose.

In some young females with fair, finely textured, highly colored skins, and in some cases of acne erythematosus also, low toleration has been found. In these cases a smaller dose is given, that is, one-eighth skin unit.

The question of idiosyncrasy is often brought up, but most authors deny this possibility and explain poor results by errors in dosage and imperfections in the methods used.

One quarter skin unit is given once a week to each side of the face. In doing this there is ordinarily enough overlapping to cover the front of the face, but if there are many lesions on the chin and forehead, it may be necessary to give an extra one-eighth skin unit to these areas. The hair, eyes, and eyebrows are to be protected by lead foil. In treating the back and chest, slightly larger doses may be given. By giving this amount at these intervals an erythema dose is never administered since the effect of the first treatment has gone entirely before the next one is given. If there is the slightest sign of erythema, the dose is not repeated until its disappearance indicates normal tissue recovery. The presence of erythema is judged by noting the border between the area treated and the shielded skin about the eyes. This must be noted in clear natural daylight.

*This is the indicator of a color test dependent upon the coloration of disks of platino-cyanide of barium by the x-rays.

It is unnecessary to use any local treatment, and patients must be cautioned about the use of any soaps or salves containing drugs such as chrysarobin, iodine, salicylic acid, tar, mercury, resorcin, scarlet red, salicyl hydrate, or sulphur for a considerable time before or after treatment because of the fact that these substances render the skin more susceptible to irritation and burn.

Autogenous vaccines are frequently used by some as a supporting treatment, but most authors feel that this procedure promises nothing.

As in any disease it is also necessary to control any underlying factors such as focal infection, etc., when possible to do so. Regulation of diet and relief of constipation are frequently necessary, and scalp conditions which are usually associated with acne must be treated.

All potent therapeutic measures are dangerous in unskilled hands, and the x-ray is no exception. However, with caution, good judgment, and modern apparatus and technique, the Roentgen ray treatment of acne vulgaris is not only the best method, but a perfectly safe one.

None the less, we hear a great deal about complications and sequelae. Telangiectasis and atrophy can occur only from over-dosage. This is so rare that it scarcely needs mention, but the following complications warrant a few words:

Dryness of skin:—The skin may become dryer than normal during treatment so that it is easily irritated by wearing apparel, etc., or too frequent washing. This condition is readily controlled by a simple ointment and is only transitory.

Freckles:—Some brunettes show various degrees of pigmentation, but this condition is evanescent, although for the time being it is annoying to the patient.

Pitting:—It is generally conceded that this is a psychological matter; that the pits are due to the disease itself and as the disease clears up, the pits simply become more conspicuous.

Superfluous hair:—In so far as superfluous hair and acne are both due to an abnormal condition of the pilosebaceous gland system, we frequently observe the two conditions together. It will also be noted that usually the hair complained of is most marked under the chin where practically no treatment is received.

Conclusion:—The use of the Roentgen ray in acne vulgaris is the best treatment we possess, and in the hands of an operator who follows modern measured technique, and who is careful to keep his apparatus in good working order, is perfectly safe.

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Book Reviews.

The Heart as a Power-Chamber. By HARRINGTON SAINSBURY. Oxford Medical Publications. 1922. 248 pp.

This book takes up the subject of the heart and circulation from a somewhat novel point of view. The particular emphasis is on the mechanical side of the circulation with a discussion of hydraulic principles. Although this idea is a laudable one, there would seem to be no excuse for the publication of such a book as this proves to be. A brief article of a few paragraphs or of a few pages at the most would have been more than sufficient to cover the ground.

The book is easy to read for there is little technical detail mentioned in it, but it grows very tiresome as a result of repetition and wordiness. The English at times is very quaint and reminds one of medical works written centuries ago, but the very quaintness of style does not excuse the vagueness and inaccuracy of the book.

There seems to be an attempt in this book to express a reaction against some of the more modern work on the circulation. This is, however, simply an attempt, because no proof is given that this modern work on the heart is not of far greater importance than most that has preceded and for which the writer of this work seems to be the champion. For example, there is a constant harping on the back pressure theory, which had been for years one of the bugbears in medicine but which now, in the light of more recent work, we thought had been dissipated. Once in a while there is a useful observation such as that concerning the relationship of the velocity of the blood stream to the cross section area of the circulation on page 90, and the diagram on page 93 illustrating the blood circuit. In the main, however, the information to be derived from the book is very little and may be typically represented by the following two paragraphs quoted, the first from the preface and the second from the chapter on Treatment, which chapter, by the way, barely mentions digitalis and gives no direction for its proper use, and praises the administration of such drugs as strychnine, camphor and eserine as cardiovascular stimulants.

"And what are we to say of design, that other salient feature which the study of struc-

ture brings out? This at least, that the more we look at it and into it, the more does its supreme art appear, and nowhere more so than when we search the chambers of the heart. Well may Borelli call this organ 'hanc mirabilem structuram,' and well may William Blake, the mystic, innocent of science and all its ways, exclaim in that strange poem, 'The Tiger':

'And what shoulder, and what art
Could twist the sinews of that heart?'

Whence came the inspiration which thus spoke, and whence the insight?"

"The first aphorism meets us at the very portals of the temple of Aesculapius, and like a solemn introit conducts its votaries across the threshold. It tells of the brevity of Life, and of the interminable pursuit of Art (life's task); it tells with unerring directness of the urgency of the Moment, that is, of the swift passing of Opportunity's escaping forelock. The next pronouncement cries halt, despite all the need for haste which the crescendo argument has developed up to this point; for now it bids us pause and consider that Experiment is hazardous, in that, apart from the peril of active intervention, we may perchance thwart the healing powers of Nature; and, again, that Judgment is difficult, not to say fallible. The problem thus confronted, there follows as a corollary the immediate practical deduction which must be acted upon without delay, yet without undue haste, having first given the mind time to visualize the problem in its entirety and to consider the vantage point of Opportunity, in time and place: the second half of the aphorism embodies this conclusion."

"Explicit." ???

A History of the National Tuberculosis Association. By S. ADOLPHUS KNOPF, M.D. National Tuberculosis Association, New York.

In this volume Dr. Knopf has brought under one pair of covers a remarkably large and accurate amount of information. The story of the tuberculosis campaign in this country has been a striking one of tremendous progress, not without its romantic and even its tragic sides. Dr. Knopf has undertaken a great task, which he has accomplished well in the present volume. The book is a large one of nearly 500 pages, but attractively gotten up, well printed and arranged.

The first part describes the early history and development of the National Tuberculosis Association, devoting especial attention to its organization, early problems, the tuberculosis Christmas Seal campaign and the Framingham Demonstration.

In the second part is a brief summary of what took place at the seventeen annual meetings of the National Tuberculosis Association which have thus far been held.

The third part consists of 49 biographies, with photographs, of the officers of the Association.

In addition there are three appendices:—

I—describing anti-tuberculosis work during and after the World War;

II—a list of publications of the National Tuberculosis Association;

III—which the reviewer is frank in admitting that it might with better taste have been omitted—a list of Dr. Knopf's writings. Exactly why he chose to include these in a history of the National Tuberculosis Association, with which it is not fundamentally concerned, is not easy to see.

The book, however, is a valuable contribution in that it presents a permanent record of one of the great movements toward the betterment of mankind.

Smell, Taste, and Allied Senses in the Vertebrates. By G. H. PARKER, Sc.D., Professor of Zoölogy, Harvard University. 192 pages. 37 illustrations. J. B. Lippincott & Company. Price \$2.50.

This book is one of the series of monographs on experimental biology edited by Jacques Loeb, T. Y. Morgan, and W. J. V. Osterhout. The writer presents, in a clear and readable style, a summary of all that is now known about these senses. The discussion of the details of the process whereby olfactory and gustatory sensations are aroused is particularly interesting. The book should be valuable as collateral reading in courses in physiology and psychology, and is well worth reading for its own sake, because it adds to one's store of general information.

A System of Clinical Medicine. By THOMAS DIXON SAVILL, M.D. 6th edition, 951 pages. Wm. Wood & Co., New York. 1922. Printed by Wm. Clowes & Sons, London and Beeches. 16mo.

A helpful and practical work on clinical diagnosis, prognosis and treatment, better known in Great Britain than in America. Etiology, pathology and the laboratory aspects of diagnosis are included. This sixth edition has been carefully revised and is up to date. As stated in the preface, this book differs from many current textbooks of medicine in that it approaches the subject from the point of view of symptomatology; thus differential diagnosis is a prominent feature. A vast amount of information is compressed into the volume, so that it serves as a guide to all aspects of clinical

medicine. However, in many instances, the information given comprises but useful hints so that other literature must be consulted to obtain desirable results.

There are four plates in colors and one hundred and seventy-two figures in the text. Such illustrations in most textbooks are unsatisfactory and those in this manual are no exception to the rule. However, the printing and publishing aspects of the book are pleasing.

Dr. Savill's book will fulfill many practical needs of the general practitioner and student, and if one is to have in his own library but a single volume on clinical medicine, this book would be a good choice.

The Place of Version in Obstetrics. By IRVING W. POTTER, M.D., F.A.C.S. With 42 illustrations. C. V. Mosby Co., St. Louis, Mo.

In this book of 130-odd pages, Dr. Potter has written a review of the early history of version, bringing it up to the present time. The main interest in the book and the real importance it has to the medical profession is his account of his so-called method of version.

Chapter four contains the author's technique of version. This chapter is to all intents and purposes a reprint of his article which appeared in the *American Journal of Obstetrics and Gynecology* for March, 1921. It contains the same photographs, with a few drawings added.

The reviewer will admit at the outset that Dr. Potter does the best version he has ever seen. His technique is interesting to see and in many instances physicians will profit by following it in doing a version. That the technique which he has developed is alone his, the reviewer can not agree with. It has been taught before that both feet should be brought down. It has been taught that the anterior arm should be delivered first, and more than one physician has elected to end labor by an elective version. But the reviewer knows of no physician who has taken the stand that every woman, if the physician can get to her before she delivers herself, should have a version performed upon her. Dr. Potter subjects every woman that he can to a version. Those that he can not deliver by version he does a Caesarean section on, with the result that in the last year, out of 1130 women that he delivered, 938 were delivered by version, and 100 by Caesarean section. Dr. Potter states that the procedure in competent hands should be attended with no maternal and a very small fetal mortality. Further on he says that the operation must at all times be done *only in properly selected cases* (his italics), and he quotes "The Potter version can be taught to students. It is easier to teach than the use of forceps." This last quotation is from an article by Rucker on "The Potter Version," published in the *American Journal of Obstetrics*

and Gynecology for March, 1921, and the fetal mortality in this series of cases ran from twelve to eighteen per cent.

This is what the reviewer feels will happen if the Potter method of delivery becomes widespread throughout the country. The mortality rate will rise and serious damage will be done to the children and to the mothers. Dr. Potter's only indication for performing a version is that he gets to the patient before she delivers herself. It is a dangerous teaching to put broadcast throughout the country, and it is in order to try to stop this wave of operating enthusiasm that the reviewer writes as he does.

Current Literature Department.

ABSTRACTORS.

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DEFECTS IN SCHOOL CHILDREN.

BRUCE, R. (*British Medical Journal*, August 26, 1922), discussing defects of school children, comments on the fact that out of 15,000 school children examined there was no definite evidence of pulmonary tuberculosis and only seven suspected cases. This applies to definite tuberculosis of the lungs.

Tuberculosis of the bronchial glands and elsewhere was responsible for 9 per cent. of the total crippling of school children. [J. B. H.]

ADMINISTRATIVE REQUIREMENTS OF THE VARIOUS TYPES OF TUBERCULOSIS.

MCGREGOR, A. S. M. (*British Medical Journal*, August 26, 1922), takes up the requirements of the various types of tuberculosis from a Public Health point of view and considers the question of the administrative requirements of the patient who is definitely consumptive, particularly the ambulant chronic group. He calls attention to the lack of facilities for treating non-pulmonary forms of tuberculosis. [J. B. H.]

INDUSTRIAL FATIGUE AND VOCATIONAL SELECTION ON A BASIS OF PHYSICAL INQUIRY.

MCKAIL, D. (*British Medical Journal*, August 26, 1922), discussing the subject of industrial fatigue, summarizes his suggestions as follows:

Hours of labour: Spells of work to be normally two to three hours in all occupations demanding steady application and attention. In arduous work there must be rest spells after excessive exertions, and the latter must not be unduly prolonged.

Definite intervals for meals must be provided. For work starting before 9 a. m. two meal periods should be interposed in the time-table, owing to the fact that few persons take a normal amount of food in the morning, and it is too long to work a three or four hours spell before again getting food.

For the eight-hour day a three-spell day is therefore recommended, the first of two hours and two of three hours each. For a nine-hour day the first spell may be two and a half hours and the others three and a quarter hours each. If an industry can give a "living wage" on shorter hours this should be done, and the morning spell abolished.

Conditions of employment, especially in hazardous occupations, should be good. If such conditions cannot be secured, the industry should be suppressed.

Methods of work are worthy of study, to eliminate waste of energy, to find "best" methods, and to avoid harmful movements.

Vocational selection is at present limited to the "don'ts" department. Young persons with certain defects should not be permitted to engage in specified employments. [J. B. H.]

THE PELVIC APPENDIX.

MORISON, R. (*The Lancet*, September 9, 1922), discusses what he calls the "pelvic appendix," summarizing his remarks as follows:

Inflammation of the pelvic appendix can still mislead diagnostic experts. The ordinary symptoms of appendicitis—abdominal pain and fever—may both be absent in pelvic appendix cases.

The severe pain often attending appendicitis in the early stages, wherever the organ is situated, is due to tension within the appendix resulting from retention of its contents. During this period the symptoms are similar to those of acute intestinal obstruction.

Prolonged tension results in gangrene, when acute pain disappears until perforation occurs and a second variety of pain due to peritoneal irritation suddenly develops. In many pelvic appendix cases there is no severe early pain. Not until the appendix has perforated, generally at its distal end, are urgent symptoms noted. Absence of pain is not special to the pelvic appendix, but is more common in this than in any other variety. The explanation offered is that tension is not present, because this type of appendix can empty itself, and the first serious pain results from perforation.

Frequency of micturition, especially in boys, and in rare cases retention of urine, occurs as an early symptom.

Careful rectal examination may save the situation in a difficult case. So may a blood count.

Pelvic abscess may result from the localization of a diffuse peritoneal infection, from leaking of an abscess connected with the appendix in the right iliac fossa, or from a leaking pelvic appendix.

Rectal tenesmus is the most suggestive symptom of a pelvic abscess.

The treatment of an inflamed pelvic appendix is to remove it as soon as a diagnosis has been made. After the second day from perforation it is seldom wise to operate from the abdomen, and this should never be done if the intestines are distended or the patient is acutely ill. Medical treatment is then the method of choice, until the abscess points in the rectum so prominently that it can be safely and easily opened there.

The normal peritoneum possesses an extraordinary natural immunity, but the importance of its acquired immunity is not yet appreciated fully.

Intestinal obstruction follows operations for pelvic appendicitis with disturbing frequency. When convalescence seems assured, during the second or third week, it develops suddenly. Early operation will save nearly every patient—delay is deadly. Following abdominal operation for pelvic abscess a complicated faecal fistula may refuse to heal and threaten life. In women vaginal hysterectomy will save the majority of these dangerous cases. [J. B. H.]

BONE GRAFTING AS AN AID IN TREATMENT OF TUBERCULOUS SPINAL CARIES.

GRAY, H. M. W. (*British Medical Journal*, July 15, 1922), in an article excellently illustrated with numerous x-ray plates and photographs, discusses his method of bone grafting in tuberculous bone and joint disease. [J. B. H.]

BRAIN SURGERY.

MACWEN, W. (*British Medical Journal*, July 29, 1922), in his presidential address discusses the general subject of brain surgery in an able and scholarly manner. He takes up this subject from various points of view. This article is good reading, but does not permit of adequate review. [J. B. H.]

ALCOHOL AS A BEVERAGE AND ITS RELATION TO CERTAIN SOCIAL PROBLEMS.

MELLANBY, MOTT, MACCURDY and others (*British Medical Journal*, August 5, 1922) discuss the subject of alcohol from various points of view. Mellaub considers it from its action on human economy; Mott takes it up in its relation to problems of mental disorders; while MacCurdy considers general etiological factors in the alcoholic psychoses.

These articles and their discussion are of interest and value.

SYMPOSIUM ON BONE SURGERY, FRACTURES, AND BONE REPAIR.

The entire number of the *Archives of Surgery*, Volume 5, Number 3, November, 1922, is devoted to twelve articles on the various aspects of bone pathology.

George D. Davis reports in detail a case of osteosclerosis frangilis generalisata with excellent x-ray plates of the whole bony skeleton. He refers briefly to the literature and instances a few other cases of this extremely rare condition.

Donald M. Glover reports an interesting case of osteosarthyrosis with excellent x-ray plates of the various fractures occurring in this one case.

Leroy C. Abbott of Ann Arbor makes an interesting report on the Delbert walking plaster for treatment of delayed union in fractures of both bones of the leg and shows a number of interesting x-rays which convince one of the feasibility of this method of treatment when operative interference is not desired or is contraindicated. He reports cases in detail.

Aflison and Brooks write an interesting article on bone atrophy, being a clinical study of the changes in bone which result from non-use.

Elie presents an extremely interesting study of the healing of fractures with numerous plates showing gross and microscopic appearance, and draws the following conclusions:

After an ordinary fracture, hemorrhage takes place from the marrow canal under the periosteum. The periosteum is stripped up from the cortex by this hemorrhage and by the fracture itself. Then comes the deposition of fibrin, the formation of granulation tissue and the formation of cartilage and fibrocartilage in the space beneath the stripped up periosteum. Probably the function of the periosteum is only important in the early stages, up to the formation of the cartilaginous callus. The periosteum probably serves to keep the hemorrhage from escaping and the granulation tissue undisturbed. It has no bone-forming function, and bone is not built out of it. The subsequent ossification of the cartilaginous callus is carried out almost entirely, if not exclusively, from the external aspect of the cortex. The internal callus plays no effective part in the union. It is rudimentary when it is present.

Whitman contributes an article on collective and

operative treatment of structural scoliosis, profusely illustrated, and draws the following conclusions:

1. Given a structural scoliosis of unknown origin in the case of an adolescent who applies for treatment because of progressive deformity, the prognosis as to the arrest of deformity is uncertain.

2. A certain number of such conditions may be held in check by apparatus and exercises, provided the patients at all times take a personal interest in their posture.

3. The only means of improving the actual deformity and the external appearance of the trunk is by apparatus embodying at least some of the principles outlined in the description of the corrective jacket.

4. The maximum degree of improvement having been obtained, the spine must be held corrected for a period of years while accommodative changes in the vertebrae take place.

5. This maintenance of correction can be effected only by a corrective jacket, recumbency, or operation.

6. As a climax to the corrective treatment, and as post-operative fixation, recumbency on the convex stretcher frame has proved effective in still further reducing the deformity of the ribs, and in allowing full opportunity for chest expansion.

7. While the amount of actual anatomic correction of the deformity of the vertebrae is exceedingly doubtful, the improvement in the patient's external appearance seems to have been maintained by the operation. It has also greatly abbreviated the period of their convalescence.

8. The older the patient, the more rapid the ankylosis.

Kleinberg writes on the operative treatment of scoliosis alone and believes that the discomfort and disadvantages of plaster of paris jackets are avoided and the physician is spared much hard work through the operative treatment. The final results obtained compare more than favorably with those following the use of plaster of paris braces or gymnastic exercises.

Baneroft contributes an excellent article on bone repair following trauma and infection, and draws the following conclusions from his work:

From the experience obtained with these cases and from the many animal experiments, I am convinced that, in the future in the treatment of children, we can be more conservative.

First, adequate drainage should be obtained with as little trauma as possible. Second, in cases in which the patient is clinically progressing favorably, bone, which by roentgen-ray or gross examination appears dead, may frequently be saved to advantage in order to prevent deformity and hasten convalescence.

Finally, I believe that in the past we have made bone repair appear much too complex. We have been lost in the by-ways of periosteum, endosteum and bone reticulum. It is much simpler to believe that bone occurs as a chemical deposition in connective tissue. Such a theory allows for bone formation as it appears in all parts of the body.

In bone transplants, we must assume that the transplant *per se* does not live, but that it acts as a framework for new bone and stimulates osteogenesis. We must, therefore, apply grafts that can easily have a blood supply established, and have sufficient free surface to stimulate bone production.

In the treatment of fractures, care must be taken to increase the blood supply. This is more important than immobilization that constricts the limb. Early motion favors union for this reason.

What we are apparently doing when a bone graft is made or when extraskeletal bone occurs in an experiment is producing the right chemical state. Then the process of bone formation inevitably follows.

Lounsberry and Metz present an article beautifully illustrated with drawings on lipping fracture of the lower articular end of the tibia and show their end-results. [E. H. R.]

A REPORT OF FIVE UNUSUAL CASES OF HYPERTENSION IN PREGNANCY.

WILLIAMSON, A. C. (*Surgery, Gynecology and Obstetrics*, November, 1922), writes as follows:

Hypertension may exist throughout pregnancy with no apparent sign of kidney lesion.

Some cases of hypertension in pregnancy may be carried through to a successful termination with careful watching.

Cases in pregnancy with hypertension without demonstrable kidney lesions are probably of vascular origin.

The most likely cause of such hypertension is that it is of toxic origin with the primary action taking place directly in the arterial wall.

The prognosis of such cases is always grave and doubtful both for immediate and subsequent life and the patient should appreciate fully the import of hypertension. [E. H. R.]

SOME ERRORS IN THE DEVELOPMENT OF THE THYROID GLAND.

HARTLEY, J. N. J. (*Surgery, Gynecology and Obstetrics*, November, 1922), writes as follows:

Embryological researches have led to a better comprehension of the various congenital abnormalities encountered in the thyroid gland.

A lingual thyroid in many cases is a true ectopia thyroidea, and then represents the whole of the acting thyroid tissue of the body.

This is clinical confirmation of the modern embryological teaching that the thyroid derives no functional tissue from the ultimobranchial body.

The absence of a palpable isthmus in the pre-tracheal region is strong evidence of such a lingual swelling being an ectopic and not an accessory thyroid.

When a lingual thyroid gives rise to symptoms demanding surgical intervention, a minimal amount of tissue should be removed, and the surgeon should be prepared to adopt thyroid therapy if the clinical symptoms or the basal metabolism rate indicate a state of hypothyroidism.

The so-called "infrahyoid" type of thyroglossal cyst not infrequently has an epithelial prolongation upward, either through, behind, or in front of the hyoid bone, and, to ensure non-recurrence, it is advisable, when the pedicle can be traced to this bone, to resect the middle portion and to search for a tract leading to the foramen caecum. [E. H. R.]

FRACTURES OF THE TIBIAL SPINE COMBINED WITH FRACTURES OF THE TUBEROSITIES OF THE TIBIA.

SEYER, J. W. (*Surgery, Gynecology and Obstetrics*, November, 1922), presents an interesting article on this latter rather rare condition. He finds that the condition is often discovered on close examination of x-ray plates of old lesions, that the lesion is often overlooked, the symptoms are more or less of a chronic nature, and the condition is also oftentimes discovered after a long lapse of time. The cases show a very good ultimate function after considerable time. Treatment has generally been non-operative, being by means of fixation and extension followed by massage and baking, and passive and active motion. No operation was done in the series reported. Operation should be reserved for cases which do not obtain full and free extension of the knee, especially where

there is pain and disability. The vertical incision through the patella is the technic of approach. [E. H. R.]

TUMORS OF THE TESTICLE, WITH ANALYSIS OF ONE HUNDRED ORIGINAL CASES.

TANNER, C. O. (*Surgery, Gynecology and Obstetrics*, November, 1922), writes as follows:

New-growth of the testicle occurs about once in 2000 male hospital admissions. The disease is practically always unilateral, involving both sides only as a metastatic growth from the skin, seminal vesicles, etc. Trauma as an etiological factor in these tumors evidently has some foundation. Practically all cases occur between the ages of 18 and 50 years, the period of greatest sexual activity. Both testicles are involved with about equal frequency. Undescended testicles within the canal are more apt to become malignant than normally placed organs. Undescended testicles within the abdomen are relatively immune to malignant changes. The average mortality of these tumors taken from literature is about 80 per cent., based on a four-year postoperative period. In this case the mortality was found to be about 70 per cent.

The so-called mixed type of tumor gives a much higher mortality than the carcinomatous type. In this series it was 90 per cent. in the former type and 60 per cent. in the latter. Tumors containing cartilage and squamous epithelium seem to have a decidedly unfavorable prognosis. The prognosis in abdominal tumors is also very bad—only 6 per cent. of a large series being alive and well two years after operation.

The radical operation should be performed in all cases in which the disease is apparently limited, i.e., in cases showing no abdominal metastases clinically. The ordinary castration operation, even when supplemented by Coley's serum, x-rays or radium, does not yield satisfactory results. [E. H. R.]

AN ARTICLE ON SYPHILIS OF THE UTERUS BY SOSNOWSKI.

SOSNOWSKI, J. C. (*Surgery, Gynecology and Obstetrics*, November, 1922), presents a fairly clear picture of a condition which it is believed may many times be overlooked and confused with pathological conditions in the uterus of a lesser severity. Undoubtedly the recognition of a syphilitic condition of the uterus with adequate treatment would cure a great many cases which now go on to invalidism without the true condition being recognized. The author states that the Wassermann reaction in many of these cases was negative and, therefore, the diagnosis was not confirmed by laboratory test; but, after some study, the clinical picture is generally fairly clear.

He speaks of the initial sore as not generally being on the cervix. If, however, it is on the cervix, we find this part of the organ rather soft, congested, with the ulcer surrounded by a bluish areola, and the ulcer covered with dirty looking membrane. The character of the discharge is serosanguineous. The second stage, or the stage of congestion and engorgement of the uterus, is called by the author the hyperplastic stage, or that of the wet uterus. The third stage, the hypoplastic or stage of the dry uterus, is the dormant stage. As the uterus passes through the wet stage, it is less and less apt to retain a foetus, and in the dry stage, it is almost impossible for a fertile ovum to find lodgment or nourishment in the fibrous-walled organ. This is the reason why abortion so often occurs in this type of uterus.

Given a combination of uterine symptoms with other evidences of syphilis, it is wise to try anti-syphilitic treatment before operative measures of any sort are instituted. [E. H. R.]

OVARIAN TRANSPLANTATION.

MARTIN, F. H. (*Surgery, Gynecology and Obstetrics*, November, 1922), writes as follows:

My first report was made in 1903; my second report in 1908; my third in 1911; my fourth in 1915; my fifth in 1917. As in this, my sixth report, I have attempted each time to bring the literature up to date, and to furnish a complete bibliography.

I can summarize my impression of the whole subject by saying that as more evidence is accumulated from the literature, the claim of the earlier enthusiasts seems to become less and less substantial.

The one most hopeful feature that I am able to glean from the mass of more or less loosely recorded evidence is that the clinical records dealing with transplantation in the human show that while autotransplants give some evidence of success, homotransplants and heterotransplants give practically none at all. On the other hand, definite evidence of success is recorded as the result of carefully conducted experiments on animals in which matters of selection of appropriate material and proper technique are more controllable than in dealing with the human. May we hope that this fact and a more careful study of the subject from a scientific and experimental standpoint will reverse the unsatisfactory showing?

In the meantime, in the light of previous publications, the opinions expressed in the writings on this subject in 1918, 1919, 1920, and 1921, may be summarized as follows:

1. Clinically, there is very little to encourage one to believe that transplantation of ovaries as practised up to the present time has more than speculative value as a surgical procedure.

2. There is some evidence that autotransplants are of some value in deferring the symptoms of the menopause and delaying the cessation of menstruation. It is difficult, however, not to attribute some of this evidence to suggestive therapeutics or to unattached ovarian tissue left *in situ*.

3. There is practically no convincing evidence that homotransplants have been successful in the human female.

4. There is no evidence that heterotransplants have been successful where the human female has been the recipient.

5. There is some encouraging evidence recorded in experimental animal surgery that not only autotransplants, but homotransplants, and even heterotransplants have been successful and the sexual function of the castrated animal maintained.

6. The technique followed by the various operators on human females, in too many instances, seems unsurgical and too often is incompletely and loosely recorded, leaving the impression that the conclusions derived from such work must be unreliable.

7. There is, however, encouraging evidence in all of this endeavor to lead one to hope that the subject will be pursued experimentally, especially for the purpose of devising a rational and simple technique, based on the work of the serologists, the endocrinologists, the haematologists, and the practical clinical surgeons. [E. H. R.]

PELVIC TUMORS WITH SACRAL ATTACHMENTS.

LAW, A. A. (*Surgery, Gynecology and Obstetrics*, November, 1922), states that, owing to the demonstrated tendency to malignant degeneration, these tumors should be removed when recognized and that they always should be attacked from behind through the sacro-coxycal route. The modified Kraske approach is ideal for the larger tumors, which permits them to be shelled out with little difficulty, usually

without invading the peritoneum, and facilitates the control of hemorrhage. The author reports two cases. [E. H. R.]

OBSERVATIONS ON THE TREATMENT OF SYPHILIS IN PREGNANCY IN THE DEPARTMENT OF HEALTH IN DETROIT.

WELZ and VAN NEST (*American Journal of Obstetrics and Gynecology*, Vol. IV, No. 2, August, 1922) state that most obstetricians find that the greatest causative factor in premature deliveries and macerated feti is syphilis. At Prenatal I of the Department of Health of Detroit an attempt has been made to lessen the incidence of congenital syphilis through prenatal care. During 1921, 1167 new prenatal cases attended the clinic. Of them, 47.6 per cent. were white and 52.4 per cent. were colored. Of the total, 13.1 per cent. were diagnosed as syphilitic. Among the white patients, 5.7 per cent. were syphilitic, and among the colored, 19.3 per cent. were syphilitic. Of the total of 193 patients having syphilis, only 147 were cared for through pregnancy. The following conclusions were made:

About 85 per cent. of the mothers diagnosed as syphilitic suffered from latent syphilis. It was not through complaint, but through routine examination that these were discovered.

Early diagnosis and treatment are of utmost importance. As syphilis is transmitted only through the placenta to the fetus after a period of about three months, it is evident that treatment instituted early in pregnancy can prevent fetal transmission. After the fetus is infected, the possibility of fetal cure is lessened and it is more difficult to accomplish. It is questionable whether antisypilitic treatment through the mother can be of any value to the fetus *in utero* when the vital organs of the fetus are severely involved. Full treatment should be attempted even at the end of pregnancy in hope of securing a controlled case in a living child which can be further cared for after birth.

The injection of neosalvarsan was not found to produce miscarriages or premature deliveries. With a small initial dosage, gm. 0.3, and an increase to gm. 0.45 or gm. 0.6 in weekly injections, no harm results.

Those mothers who have not completed their treatment before delivery are urged to return for the completion of treatment after delivery. They are also urged to return to the clinic for examinations and care as soon as future pregnancies are suspected.

Every prenatal case should be carefully examined for syphilis. Routine examinations of placenta and fetus for signs of syphilis are valuable not only to the child, but to subsequent children which are born after proper treatment has been instituted upon the mother. [H. G.]

INFLUENCE OF GLANDS WITH INTERNAL SECRETIONS ON THE RESPIRATORY EXCHANGE.

MARINE, D., and BAUMANN, E. J. (*Journal of Metabolic Research*, June, 1922, Vol. 1, page 777), gave nine experiments from which they concluded that a thyroid-suprarenal cortex interrelationship exists, which is separate from the thyroid chromophil tissue interrelationship. The nature of this relationship is unknown, but the evidence suggests that the suprarenal cortex, as one of its functions, exercises an inhibitory or regulatory control over thyroid activity. They also believed that these observations throw light on the thyroid-sex gland interrelationship known since antiquity and probably have an important bearing both on the etiology of simple goitre and on exophthalmic goitre. [H. G.]

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AN "OPEN LETTER."

A so-called "Open Letter" has been sent to "School Committees, Principals and Teachers" by the Medical Liberty League, Inc. This letter concerns the Schiek test, and urges its recipients, before aiding or abetting the efforts of propagandists of the Schiek test, or consenting to take any part in conducting Schiek test clinics in the schools under their control, to make their own investigation "as to the alleged merits of this much advertised procedure."

An open letter, apparently, is not necessarily the product of an open mind, for the initial statement is followed by four printed pages of violently anti-Schiek propaganda. The unfortunate cases of Dallas, Texas, of 1919, where an improperly made proprietary preparation of toxin-antitoxin caused severe reactions and five deaths, and the experience of Macon, Georgia, in the same year, are cited. It is interesting as regards this second experience to note that the statements of injuries as read in the plaintiffs' petitions only are quoted.

These statements are followed by a number of others, probably accurately quoted, but, as is the custom of these writers of open letters, so misconstrued or robbed of their context as to imply a meaning that was not intended by their authors in most instances.

It is not our purpose to argue point by point

the conclusions reached by our opponents. The Schiek test and toxin-antitoxin have been accepted by the medical profession, that body of men which is, by and large, most capable of passing on their merits. The Schiek test and toxin-antitoxin, as with all justifiable medical procedures, are not infallible. The Schiek test may be in error; toxin-antitoxin may fail to immunize; the patient with acute appendicitis may die under the knife. Nevertheless, all of these procedures are justifiable. Where we lay ourselves most open to criticism, granted that our products are carefully prepared and our technique scrupulously performed, comes in promising too much for our performances.

We must accept the methods for well-doing that are provided us, acknowledging their failures and liability to error, promising too little rather than too much; then, having formed our opinion as to their value, stand behind them to the limit of their worth, for only in this way can we, who are entrusted with the public safety, successfully combat the forces of ignorance, prejudice, or malice.

THE ANNUAL REPORT OF THE COMMISSIONER OF PUBLIC HEALTH.

This résumé of the conditions met and activities maintained is gratifying to students of health problems because this report presents evidence of progress in this important department of public service.

The loss of three devoted public servants through the deaths of Dr. William J. Gallivan, Prof. William T. Sedgwick, and Mr. James C. Coffey has been a serious one to this department.

All divisions of the department are now in charge of full-time expert officials.

1921 has no parallel in the history of the Commonwealth in its freedom from epidemics. One typhoid epidemic, due to infection of a single unpasteurized milk supply, practically covers the entire story of serious epidemics for the year! There were 114 cases in this outbreak.

The number of deaths caused by pulmonary tuberculosis during 1921 throughout the entire state will not exceed 3,300, which is at a rate of about 85 deaths per 100,000—a reduction of 38 per cent. since 1918.

Instead of expanding the organization concerned with control of venereal diseases, as had been planned, the department was forced to cut down expenditures in this direction because of the cessation of Federal funds for the furtherance of venereal disease work in the several states. The attendance at venereal clinics is increasing, but the Massachusetts Charitable Eye and Ear Infirmary workers report an increase in cases of congenital eye syphilis. The crying need in this work is for follow-up workers. (1) To discover fresh foci; (2) To get in-

fectured persons under treatment as soon as possible, and (3) To see that these individuals persist in treatment until benefit is assured.

The lepers formerly at the leprosarium on Penikese Island have been transferred to the new Federal leprosarium at Carville, Louisiana. The closing of the state leprosarium is the outstanding institutional feature of the year.

The following recommendations for legislation have been submitted to the General Court:

1. An act accepting the provisions of an act of Congress relative to the promotion of the welfare and hygiene of maternity and infancy and for other purposes and providing for co-operation with the Federal government.

2. An act relative to the analysis of liquor by the Department of Public Health.

3. An act relative to the publication of certain information by the Department of Public Health.

4. An act relative to the examination of vinegar.

5. An act relative to the purchase of land in Westfield.

6. A resolve relative to the reappropriation of certain funds to be used in connection with the work of the sanitary improvement of the Neponset River.

It is interesting to note that the percentage of deaths of six of the more common communicable diseases to the death rate from all causes for the last forty years is decreasing.

	1880.	1890.	1900.	1910.	1920.
Diphtheria	2,394	1,626	1,475	679	591
Measles	236	114	330	240	352
Scarlet fever.....	574	196	391	254	214
Pulmonary tuberculosis	5,494	5,791	5,199	4,503	3,645
Typhoid fever	882	835	632	411	95
Whooping cough ..	230	363	337	183	546
	9,810	8,925	8,364	6,270	5,443
Total deaths from all causes	36,589	43,528	51,156	54,407	53,632
Per cent. due to above communicable diseases	26	20	16	11	10

The following table gives the total number of cases and deaths reported for the year, i.e., calendar year, 1921:—

	Cases.	Deaths.
Actinomycosis	2	1
Anterior poliomyelitis	233	47
Anthrax	6	—
Chicken-pox	8,324	8
Diphtheria	9,100	603
Dog-bite	118	—
Dysentery	25	23
Encephalitis lethargica	117 ¹	74
Epidemic cerebrospinal meningitis..	164	58
German measles	649	—
Gonorrhea	5,563	5
Influenza	735	155
Leprosy	1	1
Malaria	49	2
Measles	17,827	174
Mumps	3,952	6
Ophthalmia neonatorum	1,573	—

	Cases.	Deaths.
Pellagra	11	14
Pneumonia, lobar	4,080	1,818
Scarlet fever	8,331	189
Septic sore throat	140	42
Smallpox	37	—
Syphilis	2,497	198
Tetanus	39	25
Trachoma	97	—
Trichinosis	10	1
Tuberculosis, pulmonary	6,168	3,304
Tuberculosis, other forms	827	551
Typhoid fever	917	121
Whooping cough	5,703	197
Rabies	1	3
Hookworm	1	—
Typhus fever	2	1
Total	77,302	7,621

¹ Made reportable March 1.

For the work of the Subdivision of Venereal Diseases the following table, showing the figures for 1919, 1920 and 1921, indicates at a glance the continued progress in this field:—

	1919.	1920.	1921.
Ampoules of arsphenamine distributed	21,667	26,782	38,473
Cases reported by number:			
Gonorrhea	9,435	7,225	5,563
Syphilis	4,127	2,986	2,497
Pamphlets distributed	21,762	59,280	37,802
Smear examinations	4,035	2,815	2,478
Wassermann examinations	32,390	37,207	42,957
Figures for all State-improved clinics:			
New patients	4,492	7,314	4,197
Total treatments	49,005	142,367	98,473
Lapsed cases:			
Reported	1,421 ¹	1,344	1,147
Returned to treatment..	616	365	327

¹ Cases reported by name from State institutions are included with the lapsed cases up to April, 1919.

HISTORICAL LIGHT ON THE SUBJECT OF BIRTH CONTROL.

The sociologic problem of birth control is being seriously considered in many countries. In the United States the people have dealt with it quite definitely, whereas in England, for example, certain phases of it are being discussed in a way which would lead to the suspicion that the public mind has not yet been developed to the point of a definite conclusion. An English editor* gives us the following statistical information, which, we admit, piques our historical curiosity to know more about these famous men; but why does he descend from the philosophical peak of putting to us an unanswerable scientific question?

"So far as the mental side is concerned, history gives us facts concerning the parental age which is most favorable to the production of the best offspring. Shakespeare was the third child; Tennyson, the third son; Michael Angelo, the second son; Beethoven, the second of five sons and two daughters; Cromwell, the second son; Kant, the second of nine children; Newton, the only child; Darwin, the youngest but one of six children; Lyell, the eldest son; Goethe, the eld-

*Medical Press.

est child; Wellington, the third son; Robert Blake, the eldest of thirteen sons and two daughters; Chatham, the second son; Burke, the second son; Swift, the second child; Gibbon, the eldest of five brothers, and Dickens, the eldest of eight. Bacon was the youngest son; Carlyle, the eldest of nine children; Gladstone, the youngest son; Clive, the eldest son; Warren Hastings, an only child.

In this casual list the intellectual prodigy was the eldest son in nine out of the twenty-two, *i.e.*, Shakespeare, Carlyle, Newton, Goethe, Robert Blake, Clive, Warren Hastings, Gibbon and Dickens. Seven others were second children.

Among the nine eldest sons Shakespeare and Newton are the outstanding great men. However, Shakespeare, being a third child, would not have lived if only two children had been born to the elder Shakespeares. The same statement holds true in regard to Darwin, Wellington and Gladstone, as well as to Bacon, who was the youngest, and to Tennyson, who was the third son.

How would the pages of history have been altered if biological laws had been interfered with in these cases?"

These figures obviously cannot be taken seriously in considering the subject of birth control from a scientific standpoint. They deserve a sentimental interest only—and such we give them with enthusiasm.

DARWINISM VERSUS CHRISTIANITY AGAIN.

At a recent conference in St. Paul, Minnesota, of pastors representing Baptist, Congregational, Presbyterian and Lutheran churches, it was decided to issue a call for a state-wide meeting of Protestant ministers to oppose the teaching of evolution in the public schools of Minnesota.

The resolutions passed closed with the following paragraph:

"And we declare that if school authorities prove derelict in the enforcement of the law relating to the teaching of religion or of theories subversive of the Christian faith, we will appeal to the legislature for the enactment of such laws as shall eliminate from our tax-supported school system this antiscientific and antiseriptural theory of the origin of man and the universe."

Although there may be difference of opinion relating to the theories of evolution it is open to question whether the decision relating to the interpretation of scientific data should be left with the clergy, for there is not sufficient evidence at the present time indicative of an adequate amount of study on the part of the clergy that would warrant leaving the interpretation of the evidence to this body of men.

Furthermore, many scientific minds have not found in the theory of evolution any conflict with religious teaching.

AN ALLEGED ABORTIONIST DISCIPLINED BY THE COURT.

The daily papers report that Dr. Alfred D. Shea, of Cambridge, pleaded "nolo contendere" November 21, 1922, when arraigned in the Superior Criminal Court, charged with performing an illegal operation on a girl.

The Judge, according to the reports, placed Dr. Shea on probation for three years, with the condition that Dr. Shea shall not again engage in practice in this State.

In May, 1912, Dr. Shea was convicted on a charge of criminal abortion and sentenced to a term in prison of not more than 10 years, and not less than 7 years. He was pardoned by the Governor and Council the following December. Upon suspicion he was under investigation in another similar case, but through questions of legal technicality was not brought to trial.

It is gratifying to learn that this dishonored physician cannot pose as a member of the profession. The condition imposed by the Judge is an unusual way of dealing with this form of irregular practice and will have a good effect.

DIAGNOSTIC SERVICE FOR TROPICAL AND EXOTIC DISEASES.

The Department of Tropical Medicine of the Harvard Medical School has organized, for the service of the public through the medical profession generally, a diagnostic laboratory affiliated with the Service for Tropical Diseases at the Boston City Hospital.

So far as the nature of the particular problem allows, final reports will be rendered on material sent to the Department of Tropical Medicine: When it is not practicable to make the diagnosis from material that can be sent, and the presence of the patient is necessary, unless the Health Department should deem it advisable to place the case elsewhere, the patient can be referred to the Service for Tropical Diseases at the Boston City Hospital, where the necessary examination will be made either in the Out-Patient Department (Tuesday or Thursday mornings) or after admission to the ward-beds of the Service for Tropical Diseases. The necessary diagnostic procedures will then be carried on either at the Boston City Hospital or at the Harvard Medical School through the agency of the Department of Tropical Medicine.

A list of diseases in regard to which the Department of Tropical Medicine is prepared to advise as to prevention or diagnosis follows.

In a parallel column the appropriate laboratory methods of diagnoses are indicated.

Physicians are invited to write or to telephone to the Department of Tropical Medicine for information about its diagnostic service or about the best methods of obtaining material for examination.

TROPICAL AND EXOTIC DISEASES.

(Diseases printed in italics have been found in Massachusetts.)

SECTION I: PROTOZOAN DISEASES AND DIAGNOSTIC METHODS.

1. Malaria: *tertian*, *subtertian*, *quartan*. Examination of blood smears or fresh blood preparations.

2. Trypanosomiasis: *African Sleeping Sickness*. Animal inoculations. Chagas Fever (South American Trypanosomiasis). Examination of blood smears or fresh blood preparations. Spinal fluid.

3. Leishmaniasis: *Kala azar*. Animal inoculations. *Oriental sore*. Examination of scrapings from lesions. American Leishmaniasis. Examination of sections of tissue.

4. *Amoebiasis*. Examination of fresh faeces.
(a) Infection with: (a) *Balantidium coli*. (b) *Giardia intestinalis* (lamblia). (c) *Trichomonas intestinalis* (trichomonas). (d) *Chilomastix mesnili*. Examination of fresh faeces.

SECTION II: SPIROCHETAL DISEASES AND DIAGNOSTIC METHODS.

1. *Yaws*. Examination with dark field of serum from lesions and of stained preparations.

2. *Relapsing Fever*. Examination of fresh blood preparations and stained smears. Animal inoculations.

3. *Rat-bite Fever*. Dark field examination of fresh blood and of stained specimens.

4. Infectious Jaundice. Animal inoculations. Agglutination test with patient's blood. Urine examination.

5. *Yellow Fever*. Animal inoculations. Serum reactions. Examination of fresh blood and stained preparations.

SECTION III: BACTERIAL INFECTIONS AND DIAGNOSTIC METHODS.

1. Plague. Examination of blood cultures and cultures from material from gland puncture. Animal inoculations.

2. Tularensen infection (deer-fly fever). Examination of cultures of blood and material from glands. Animal inoculations.

3. *Undulant Fever*. Examination of blood cultures. Agglutination test.

4. *Bacterial Dysentery*. Examination of cultures from faeces. Agglutination test.

5. *Cholera*. Examination of cultures from faeces. Agglutination test. Pfeiffer's reaction.

6. *Leprosy*. Microscopical examination of nasal secretion and scrapings from lesions.

SECTION IV: INFECTIONS OF UNKNOWN ETIOLOGY AND DIAGNOSTIC METHODS.

1. *Typhus Fever*. Agglutination reaction of Weil-Felix. Pathological examination of skin.

2. Rocky Mt. Spotted Fever. Animal inoculations with blood.

3. *Inguinal Granuloma*. Examination of smears from lesions. Examination of sections of tissues.

4. *Tropical Phagedena*. Examination of smears from lesions. Examination of sections of tissues.

5. Veldt sore. Examination of smears from lesions. Examination of sections of tissues.

SECTION V: MYCETOMA AND DIAGNOSTIC METHODS.

1. *Madura Foot*. 2. *Blastomycosis*. Microscopical examination of fresh and stained preparations from lesions.

3. *Sporotrichosis*. Cultures from lesions.

SECTION VI: PARASITIC INFECTIONS AND DIAGNOSTIC METHODS.

1. *Filariasis*. (a) *Filaria bancrofti* (endemic elephantiasis). Examination of fresh and stained blood preparations. (b) *Filaria loa* (diurna). Examination of fresh and stained blood preparations. (c) *Onchocerca volvulus* (filaria volvulus). Examination of fresh and stained blood preparations, and examination of sections of lesions.

2. *Distomiasis*. (a) Paragonimiasis (endemic hemoptysis). Examination of sputum for ova. (b) Schistomiasis. I. *Schistosomum hematobium* (vesical bilharzia). Examination of urine or faeces for ova. II. *Schistosomum mansoni* (rectal bilharzia). III. *Schistosomum japonicum*. Complement-fixation test with blood. (c) *Clonorchiosis*. Examination of faeces for ova. (d) Other liver flukes. I. *Fasciolopsis buski*. Examination of faeces for ova. II. *Fasciola hepatica*. Examination of faeces for ova.

3. *Ankylostomiasis* (Hookworm, Uncinariasis). Examination of faeces for ova or parasites.

4. *Tacnia Infections*. *T. Echinococcus*. Examination of pathological material. Agglutination test. *Dibothriocephalus* (Fish Tapeworm). *T. Nana* (Dwarf Tapeworm). Examination of faeces for ova. Identification of parasites.

5. *Strongyloides*. Examination of faeces.

6. *Myiasis of Nose, of Ear, of Gastro intestinal tract.* Examination of discharges and identification of larvae.

SECTION VII: OTHER DISEASES OF INTEREST TO THE
DEPARTMENT.

1—*Sporadic elephantiasis.* 2—*Heat-stroke,* heat exhaustion. 3—*Siriasis.* 4—*Briberia.* 5—*Scurvy.* 6—*Pellagra.* 7—*Sprue.* 8—*Small-pox.* 9—*Dengue.* 10—*Chiggers Disease.* 11—*Acarine dermatomycesis.* 12—*Oroya Fever.* 13—*Verruga Peruviana.* 14—*Japanese River Fever (Tsutsugamushi fever).* 15—*Pappataci or Phlebotomus Fever.* 16—*Black-water Fever.* 17—*Drachontiasis (Guinea-worm disease).*

GEORGE C. SHATTUCK, M.D.

News Notes.

FRANKLIN DISTRICT MEDICAL SOCIETY.—The November meeting was held at the Weldon. Tuesday, November 14, 1922. Programme: "Along the Byways," Dr. W. A. Hutton, Shelburne Falls. "The Bright Child and the Dull," Dr. Walter C. Fernald, Waverley, Mass.

DEATH RATE IN BOSTON.—During the week ending November 18, 1922, the number of deaths reported was 221 against 203 last year, with a rate of 15.09. There were 27 deaths under one year of age against 22 last year. The number of cases of principal reportable diseases were: Diphtheria 70, Scarlet Fever 35, Measles 63, Whooping Cough 70, Typhoid Fever 4, Tuberculosis 43. Included in the above, were the following cases of non-residents: Diphtheria 8, Scarlet Fever 8, Whooping Cough 1, Tuberculosis 8. Total deaths from these diseases were: Diphtheria 3, Measles, 1, Whooping Cough 3, Tuberculosis 8. Included in the above, were the following cases of non-residents: Tuberculosis 2.

THE UNIVERSITY OF ROCHESTER is completing this month the first building for the new medical school. The City of Rochester has appropriated \$1,000,000 for the new City Hospital to adjoin the Strong Memorial Hospital. The University is to furnish the professional staff for these combined hospitals, which will have capacity for 460 beds.

DR. FRANCIS W. PEABODY read a paper Nov. 21, 1922, before the Section of Medicine of the New York Academy of Medicine under the title, "The Patient and the Man."

CHANGE OF OFFICES.—George David Cutler, M.D., and Ernest T. Saeger, M.D., announce the removal of their offices to 270 Commonwealth Avenue, Boston. Telephone Back Bay 4520. Patients seen by appointment.

GRADUATING EXERCISES OF THE SCHOOL OF NURSING OF THE PETER BENT BRIGHAM HOSPITAL.—On November 10, 1922, thirty nurses received diplomas as graduates of the Peter Bent Brigham School of Nursing. Professor C. E. A. Winslow of Yale University delivered an address and Miss Hall gave a report of the work done in the school. The exercises closed with a reception.

THE PASTEUR LECTURE FOR 1922 of the Institute of Medicine of Chicago was delivered by Dr. Jacques Loeb, of the Rockefeller Institute, on Friday, November 24, 1922.

DR. JAMES EWING, Professor of Pathology at Cornell University Medical College, New York, addressed the College of Physicians of Philadelphia, on November 1. His subject was "The Principles of the Radiation Treatment of Cancer."

DR. ROBERT BÁRÁNY, Professor of Otology at the University of Upsala, Sweden, and winner of the Nobel Prize in Medicine in 1914, is touring the United States, stopping in each of the larger cities to lecture before otologists and ophthalmologists. He gives a two weeks' lecture course and several clinics. His itinerary includes Chicago, Denver, Los Angeles, Houston, Cincinnati, Cleveland, Boston, and New York.

THE SALVATION ARMY ROXBURY HOSPITAL invitations were issued for the opening exercises to be held at the hospital, 87 Vernon street, on Thursday evening, November 23, at eight o'clock. Addresses were delivered by Colonel W. A. McIntyre, Salvation Army, and Dr. J. A. Cousens, President Tufts College.

DR. SELIG HECHT, national research fellow in chemistry, has been appointed research fellow in physical chemistry at the Harvard Medical School, where he will continue his investigations.

DR. ARTHUR BLISS DAYTON, associate in medicine at the Yale School of Medicine, has been given a year's leave of absence to serve as Professor of Medicine at the Medical School of Yale-in-China.

MR. JOHN D. ROCKEFELLER in a recent communication to the directors of the University of Cincinnati, objecting to the plan of naming a chair in the College of Medicine, says, "I should prefer to have my name recorded in the hearts and lives of those using the improvements which donations from me have made possible rather than have it carved in stone or officially connected with the building."

AMERICAN SURGICAL ASSOCIATION.—The next meeting will be held at Rochester, Minnesota, January, 1923.

The officers elected at the annual meeting are President, Dr. Lewis L. McArthur, Chicago; Vice-Presidents, Dr. Ellsworth Eliot, Jr., New York; Dr. Donald C. Balfour, Rochester, Minnesota; Secretary, Dr. Robert B. Greenough, Boston; Treasurer, Dr. Charles H. Peck, New York.

BOSTON MEDICAL HISTORY CLUB.

The first meeting of the season was held at the Medical Library on Nov. 17, and it was voted to hold future meetings on the third Mondays of each month through April.

In commemoration of the third centenary of Molière's birth (1622), Dr. Joseph W. Courtney read a paper on "Molière and the Faculty." His paper was a careful study of medical conditions in France at this period, with especial emphasis on the co-called Faculty of Medicine in Paris, its pedantry, jealousy of other schools, ignorance, and its downfall, greatly hastened by Molière's satire.

Many local allusions in the text of the plays were explained and various characters identified with well known doctors of the time. Extracts from the plays, translated into delightful colloquial English by the reader, gave great pleasure and an added realization of Molière's skill and power, and his tragic end was vividly sketched.

Following the paper, books, pictures and articles published in medical literature having to do with Molière were shown by various members of the club.

The next meeting, to be held Monday, Dec. 18, will be devoted in part to Pasteur, the centenary of whose birth occurs on Dec. 27.

CANCER DEATH RATE.

According to statements made by Mr. Edgar A. Bowers, State Registrar of Vital Statistics, the deaths from this disease since July 1, 1922, indicate that the rate will equal that of the first six months of this year and that the present rate is about the same as for 1921.

There were 2334 deaths from cancer during the first six months of this year, divided as follows: males, 899, and females, 1435. Based on the estimated population of Massachusetts this means an annual death rate in this state of 119.6 per 100,000 population. The rate for 1921 was 119.5.

BEVERLY HOSPITAL CLINIC.

A clinic was held at the Beverly Hospital, Thursday, Nov. 16, at 4 p.m., in observation of "Cancer Week."

Dr. Channing Frothingham of the Peter Bent Brigham Hospital, Boston, was the first speaker, the subject being, "Early Diagnosis of Cancer." He specially stressed the importance of thorough investigation by both patient and doctor of the cause of pain or bleeding in any part of the body.

Dr. P. P. Johnson, Chief of the Surgical Staff of the Beverly Hospital, reviewed the year's cases of cancer at the Hospital. This review brought out most strikingly the fact that too long a time elapsed between the recognition of symptoms and operation.

Dr. Isobel Bogan, Roentgenologist at the Beverly Hospital, showed interesting x-ray pictures of cancer and brought out the fact of the great aid that the x-ray gave in the early recognition of cancer in all parts of the body. She also emphasized the importance of using this aid of diagnosis more frequently and earlier.

Dr. W. T. Hopkins, of Lynn, discussed the papers and pointed to the importance of the earlier recognition of symptoms of cancer by the patient, and the importance of consulting the doctor earlier and insisting on a thorough examination.

NEW ENGLAND DERMATOLOGICAL SOCIETY.

At the quarterly meeting of the New England Dermatological Society on October 11, 1922, at the Massachusetts General Hospital, the following cases were shown:

1. Young woman; pigmented areas on face, possibly from application of face cream containing mercury. Dr. C. M. Casselberry.
2. Young woman; late syphilitic lesions of the face. Dr. C. M. Smith.
3. Case for diagnosis. Man, 43 years old, fisherman; nodular lesion at the left corner of mouth; duration, five months. Low grade infection, syphilis, sarcoid, and tuberculosis considered. Dr. A. M. Greenwood.
4. Man, 50 years old, a farm worker, with actinomycosis of skin over right jaw. Dr. J. H. Blaisdell.
5. Man, 39 years old, who had taken considerable Fowler's solution, showing keratoses and epithelioma, probably arsenical in origin. Dr. A. M. Greenwood.
6. A baby, 22 months old, showing persistent crops of bullous lesions. Pemphigus or dermatitis herpetiformis. Dr. L. J. Cummins.
7. Case for diagnosis. A woman, 27 years old, with persistent, curious erythematous and

popular eruption. Poikiloderma atrophicans vasculare (?). Dr. C. G. Lane.

8. Man, 47 years old; itching papular eruption for two years; glands in neck; x-ray shows substernal mass. Hodgkin's disease. Dr. C. G. Lane.

9. Man, 68 years old; general exfoliative dermatitis. Dr. C. G. Lane.

WORCESTER STATE HOSPITAL TRAINING SCHOOL FOR NURSES.

Dr. William A. Bryan, Superintendent, has issued a circular setting forth the need for nurses in the training school connected with the Worcester State Hospital. The entrance requirements and the details of training are set forth as follows:—

"Candidates must be at least eighteen years of age and have the equivalent of one year of High School. We offer a three years' course of approved instruction and with much practical work in general nursing. The second year the student spends at the Boston City Hospital, where she receives instruction in contagious diseases, care of children, obstetrics and general medical and surgical nursing. In our own hospital, we give an excellent training in general nursing, having active services in all specialties. In addition, nurses receive thorough instruction in occupational therapy, hydrotherapy, mechanotherapy and experience in mental work."

The wages paid the nurses and the opportunities for attendants are also set forth in the circular as follows:—

"Pupil nurses receive in addition to their board, room and laundry, \$40 per month, which is increased to \$50 at the end of the first year. Nurses are allowed 3 hours off duty each day, and one full day each week, and two weeks' vacation each year with pay. Head nurses receive from \$65 to \$75, with maintenance. We can also use a number of women attendants, who will be given an attendant's course in practical nursing. The pay of the attendants is \$40-\$50, and promotion to the grade of charge attendant carries an increase from \$55 to \$65."

THE BENEFITS OF PUBLICITY.

The lectures given during cancer week have aroused considerable interest. The free clinics have been well attended and many persons have been given expert advice. Surgeons will remove many cancers in the early stages, thereby saving many years of life as a result of the information disseminated.

Dr. Wollbach submits the subjoined letter which demonstrates one of the results of publicity. The name of the writer is omitted because the JOURNAL does not lend itself to this form of advertising.

Dr. Wollbach has not yet recommended this man for a position on the faculty of a medical school, or the department of pathology connected with any of our hospitals.

Nov. 17, 1922.

Sir.—With reference to your lecture on Cancer, reported in the Boston *Globe* of the 13th inst., I wish to inform you that I make a salve which cures all known skin troubles, including piles, cancer, and blood poison. In the above-named cases it has done the knife out of many a job. Want of finance prevents me from bringing it properly under public notice, and having it tested on what is called leprosy, which I will be in a position to do later. There are five ingredients in it, two of which are red and white precipitate powders. If you think it will help you in any way please let me know. Yours truly.

MEMBERSHIP IN THE HARVARD MEDICAL ALUMNI ASSOCIATION.

At a meeting of the Harvard Medical Alumni Association, held in the faculty room of the Harvard Medical School on November 20, the recommendation of the Council that "Section 1. Article 3. of the constitution be amended to read: 'Each graduate of the Harvard Medical School shall become *ipso facto* a member of the Harvard Medical Alumni Association.'" was approved. Also the recommendation that Section 4, Article 3, be amended by adding the following sentence: "All members of the teaching staff of the Harvard Medical School shall, during their term of service, be considered honorary members of the Harvard Medical Alumni Association," was approved.

FRANCIS M. RACKEMANN, M.D., *Secretary*.

MOTHERCRAFT CONFERENCE IN BOSTON.

A Mothercraft and Child Welfare Conference is to be held in Boston on Tuesday, December 5, under the auspices of the Massachusetts Federation of Women's Clubs. There will be a morning session at the Exeter Theatre at 10.45, for which the tickets will be complimentary; a luncheon at Hotel Lenox for delegates at 12.45, and at 4.30 an informal reception in the Fine Arts Department of the Boston Public Library, which will be the opening of a child welfare exhibit to be on view during the week. A feature of the meeting in the Exeter Theatre will be the first showing here of the mothercraft film. The speakers will include Mrs. Grace Morrison Poole, President of the Massachusetts Federation; Mrs. Elmer Blair and Mrs. Ira Couch Wood, high officers in the General Federation; Dr. A. E. Winship, representing edu-

cation; Mrs. E. C. Hanington, Superintendent of the Victorian Order of Nurses, Canada; Dr. Allan J. McLaughlin of the U. S. Public Health Service; Dr. John B. Hawes, 2d, of the Boston Tuberculosis Association; Dr. M. E. Champion, representing the State Department of Public Health, and others. Miss May Bliss Dickinson is Chairman of the Conference.

MORE COMMERCIAL VITAMINES.

The daily papers are announcing the discovery of a new process perfected by scientists of Yale, Harvard, Johns Hopkins, Penn. State, Mellon Institute of Industrial Research, and other American Universities, working in conjunction with a group of chemists employed by George S. Ward, millionaire baker. A vitamin syrup has been produced which can be combined with white bread, restoring to it the necessary food elements lost in the refinement of the flour.

Dr. Reid Hunt, of the Harvard Medical School, disclaims any connection with this work, classing it with the other attempts to commercialize the vitamins. According to his suggestion, more would be gained by advising people to add bran to their cereals and drink milk.

DEMONSTRATION CLINIC AT THE BEVERLY HOSPITAL.

A demonstration clinical meeting was held at the Beverly Hospital, Tuesday, Nov. 21.

Dr. P. P. Johnson, chief of the Surgical Staff, showed the following cases: Abdominal pain, abscess left shoulder, intestinal obstruction, appendicitis with abscess and bone tuberculosis.

Dr. Buek of the Medical Staff spoke on renal function test and showed a case of abdominal pain with a question of acidosis.

Dr. Hopkins of Lynn and Dr. Pettingill of Essex Sanatorium discussed cases.

Doctors were present from Beverly, Danvers, Haverhill, Middleton, Hamilton, Lynn and Topsfield.

R. E. STONE,
Secretary of Staff.

MASSACHUSETTS ASSOCIATION OF ASSISTANT PHYSICIANS.

The 57th meeting of the Massachusetts Association of Assistant Physicians was held at the Boston State Hospital on Thursday, November 16, 1922, seventy-eight members and their wives being the guests of the superintendent, Dr. James V. May.

During the morning small parties were escorted through the institution by members of the staff and given the opportunity of seeing the many interesting features of the hospital.

The ladies of the party were entertained by the hostess, Mrs. E. C. Noble, while the meeting was in progress.

Following a very excellent luncheon, the meeting was called to order by the president, Dr. Ralph M. Chambers. Election of officers being in order, the following were selected for the new year:

President: Dr. Arthur E. Pattrell, Boston Psychopathic Hospital. Vice-President: Dr. Roderick P. Dexter, Taunton State Hospital. Secretary-Treasurer: Dr. N. A. Dayton, Wrentham State School.

In opening the program, the Assistant Superintendent, Dr. E. C. Noble, sketched the development of Occupational Therapy at the Boston State Hospital over a period of years. In so doing, he stressed the importance of an agreeable personality in the workers in this department. Too often Dr. Noble has seen highly trained workers prove complete failures simply because they were unable to gain the confidence of their patients sufficiently to stimulate their interest. Once the importance of this factor was recognized and the need supplied, the department of Occupational Therapy developed at a rate formerly thought impossible.

Dr. E. W. Pease presented a paper dealing with recoveries and remissions in General Paralysis of the Insane without treatment. After summarizing the literature of this particular phase of the disorder, he presented a case with several very interesting features. A man of 41 was admitted with all the classical symptoms of a mentally unbalanced parietic, including positive blood and spinal fluid. A few months after admission, he had a very severe streptococcus infection of one foot. While recovering from this, he began to show gradual improvement in both psychical and physical spheres. The patient became much quieter, judgment and thought processes were improved, and he developed insight. Greatly increased interest in environment and an eighteen-pound gain in weight were observed. Neurological findings remained unchanged. Steady improvement over a two-year period resulted in the man leaving the hospital and obtaining work as a janitor, in which occupation he has remained for the past eight years. When the patient left the hospital, his blood and spinal fluid were negative, the cell count and gold curve presenting only slight deviation from normal. Discussion by Drs. Hanson, Noble, Chambers, Overholser and Pease.

An unusual case of Traumatic Psychosis with Epilepsy was presented by Dr. R. B. Dexter. At the age of forty-three the patient met with an accident, fracturing skull in the upper frontal region. Decompression revealed injury of both tables of skull and the brain lacerated and dirty. Over the following two years the patient showed gradual mental deterioration, being obliged to accept lower positions and finally being discharged. With negative family

and personal histories epilepsy developed at fifty-three, or ten years after the primary injury, and within a short period the attacks were very typically those of grand mal. Seventeen years after injury, or at the age of sixty, the psychosis appeared, somatic delusions and varied persecutory ideas holding the foreground. Following admission for the mental disturbance, roentgenograms showed erosion at seat of injury and a second operation was done by Dr. Irving P. Walker. The patient was greatly improved for three months, but at the end of that time the seizures and psychotic episodes reappeared, and have continued up to the present. Discussion by Drs. Wood, Noble and Dexter. Meeting adjourned.

NEIL A. DAYTON, M.D., *Secretary*.
Wrentham State School.

TRIBUTE TO MRS. ELIZABETH J. COLLINS.

BY JOHN W. FARLOW, LIBRARIAN, BOSTON MEDICAL
LIBRARY.

At a meeting of the Executive Committee of the Boston Medical Library on October 16, 1922, the following resolutions were passed:

"In the death of Mrs. Elizabeth J. Collins, the Library loses its faithful Cataloguer for forty-two years. Her untiring devotion to the cause of medical literature, with its difficult questions of classification and cataloguing, has been of the greatest value to the medical profession; and the Executive Committee wishes to record its appreciation of the important part that she took in the growth of the Library from its small beginnings in 1880 to its present influence in the community."

Mrs. Collins was born in Boston, October 16, 1850, and died there September 1, 1922. She was obliged to leave school at the age of fourteen, on account of the death of her father. A year later, she obtained a position in the Boston Public Library, where she remained until her marriage to Mr. Thomas Collins in 1876, returning to the library after his death in 1879.

She received a thorough training under Mr. Justin Winsor the librarian, who assigned to her the task of looking after the medical section, especially the books received from the Massachusetts Medical Society in 1873. The proper methods of classifying medical literature were little understood until the publication of the Index Medicus and the Index Catalogue of the Surgeon-General's Library under the direction of Dr. J. S. Billings in 1880. The knowledge of medical periodicals, especially the American, was very limited, and Mrs. Collins, a pioneer in Boston in medical cataloguing, had little to guide her up to that time. Fortunately, she saw more or less of Dr. J. R. Chadwick,

librarian of the recently started Boston Medical Library, who came to the Public Library to talk with Mr. Winsor and, incidentally, to try to get from him material for the young medical library. Seeing her keen interest in this work, and noting her great perseverance, Dr. Chadwick induced her to give part of her time to helping him at the Medical Library; and what was also most important, he induced Dr. Calvin Ellis to pay for her services, there being no money available in the treasury of the library. She gradually gave more and more time to helping Dr. Chadwick, and in 1881, when she was established at the Medical Library in a definite position as cataloguer, he referred to her as "specially qualified for her work by many years of similar service at the Public Library."

When she was in difficulty, she consulted Dr. Chadwick, and through him Dr. Billings. Although the first volume of the Index Catalogue came out in 1880, it was many years before the entire series was published. Through the friendship of Dr. Chadwick and Dr. Billings, it was often possible to receive advance information from Washington as to books and periodicals which had not yet been described in the Index Catalogue.

In 1906 the medical collections of the Public Library, about 11,000 in number, including those that came from the Massachusetts Medical Society in 1873, were deposited in the Medical Library, the very books that Mrs. Collins had worked over in the Public Library. The regular library hours were not long enough for her, and she generally carried home at night packages of cards, lists of books and references, over which she spent her evening hours in order to get on with her ever-expanding task. This assiduous work she continued for forty-two years, with an industry and conscientiousness that never flagged. Even in her last year or more of broken health she thought only of the library, and continued to the very end to give to it the best of which she was capable.

The Boston Medical Library and the medical profession owe her a debt of gratitude for her lifelong devotion to the best interests of medical literature.

Miscellany.

THE ANNUAL MEETING OF THE NATIONAL COMMITTEE FOR MENTAL HYGIENE, INC.

The 13th Annual Meeting and Luncheon of the National Committee for Mental Hygiene was held at the Pennsylvania Hotel in New York on November 9th. Addresses were made by Dr. Haven Emerson, Professor Stephen P. Duggan, Mr. John J. Carty of New York, Professor Elton Mayo of the University of

Queensland, Australia, and Dr. Frankwood E. Williams, Medical Director of the National Committee.

Dr. Emerson spoke on the importance of the mental hygiene movement as a public health factor and asked for the support of those who have hitherto subscribed to the movements against infant mortality, tuberculosis and the other infectious diseases. He also pleaded for the wider education of physicians in mental diseases, after showing that more lay people were acquainted with the subject than doctors.

Dr. Walter B. James of New York was re-elected President of the Committee. Other officers elected were Dr. Charles W. Eliot, Dr. Bernard Sachs, and Dr. William H. Welch, Vice-Presidents; Mr. Otto T. Bannard, Treasurer; and Mr. Clifford W. Beers, Secretary.

Among those re-elected to membership were: Dr. Lewellys F. Barker and Dr. J. M. T. Finney of Maryland; Dr. Frank Billings of Illinois; Dr. George W. Crile of Ohio; Dr. L. Emmet Holt, Dr. John H. Finley, Mr. John J. Carty and Judge Learned Hand of New York; and Dr. Harvey Cushing, Dean Roseoe Pound, Dr. Anson Phelps Stokes, Dr. Joel E. Goldthwait, Dr. Austen Fox Riggs, President William A. Neilson and Dr. Henry R. Stedman of Massachusetts. Among the new members elected were Dr. Frederiek C. Shattuck and Hon. Herbert C. Parsons of Boston.

OBSERVANCE OF AMERICAN EDUCATION WEEK.

Two years ago Dr. P. P. Claxton, former Commissioner of Education, instituted the observance of the first week in December as "Education Week." The American Legion last year became interested in the perpetuation of such a week and took the initiative in inviting the National Education Association and other organizations to coöperate in the observance of "American Education Week." This year the United States Bureau of Education in coöperating with the American Legion and the National Education Association in inviting every American organization, club, church, school, newspaper, magazine, theatre and individual and bodies of every description to participate in making the week, December 3-9, a real nationwide revival of educational enthusiasm.

It seemed wise, in order that the campaign might be concentrated upon phases of education which are of outstanding significance, to designate certain days on which topics should be stressed. These days are as follows: Sunday, December 3, God and Country; Monday, December 4, American Citizenship; Tuesday, December 5, Patriotism; Wednesday, December 6, School and Teacher; Thursday, December 7, Illiteracy; Friday, December 8, Equality of

Opportunity; and Saturday, December 9, Physical Education and Hygiene.

The placing of Physical Education and Hygiene at the bottom of the list may not indicate a lack of appreciation of the importance of this department of education but the result may be that less interest will be created. "God and Country" and "American Citizenship" could have been combined in one exercise and Monday, Dec. 4, have been given to "Physical Education and Hygiene." The promotion of health and physical efficiency is a fundamental condition affecting a country's progress and should occupy a most prominent place in an educational program.

Correspondence.

LONDON LETTER

(From our own Correspondent)

London, Nov. 11, 1922.

THE RISE AND FALL OF SURGICAL OPERATIONS.—Mr. James Berry, the well known London surgeon, on the evening of Nov. 1, gave an address as President of the Section of Surgery of the Royal Society of Medicine, at the home of the Society, 1, Wimpole Street, London, W. Mr. Berry as a student witnessed the last of the pre-antiseptic days, and had watched the development, first of antiseptic surgery and later the gradual development of the aseptic régime, under which so many of the greatest advances of modern surgery have been made. In the eighties operative surgery of the skull and brain was in its infancy. Mr. Berry pointed out that now experience and skill were especially essential in brain surgery. An operation on the brain which might be a brilliant success in the hands of a Harvey Cushing or a Sergeant might prove a terrible disaster when performed by a man with inadequate skill or insufficient experience. It was a truism to state that most of the progress made in surgery was due to the application first of antiseptic and later of aseptic principles. He could recall the days when eminent surgeons operated in old frock coats, splashed with blood and besmeared with pus. Indeed the more dirty the coat, the greater seemed to be the pride of the surgeon who wore it. The surgeon of those times did not trouble to wash his hands before an operation and Mr. Berry has actually seen a surgeon bite a ligature. He emphasized the point that it is of equal importance to know when to operate and how to operate and in support of this statement quoted a saying of a very great French surgeon: "I can teach my assistants to operate in the space of six months, but it takes twenty years of experience to know when to operate."

Perhaps, however, the special features of the address were those parts dealing with the results of operations for appendicitis and the tendency brought about by the war, of inexperienced men operating for the relief of serious conditions. Mr. Berry's remarks on the surgery of appendicitis should be of particular interest to New England and Boston medical readers, on account of the fact that appendicitis was in a manner of speaking discovered in Boston. Fifteen years ago he had expressed the opinion in the *Lancet*, Sept. 7, 1907, that if we were to all go back to the old treatment of appendicitis that was in vogue 25, now 40 years ago, that there would be a lesser mortality than there is at present. Fifteen years of further experience had confirmed him in this view. Of course, he did not suggest that the experienced surgeon should not operate for acute appendi-

citis, or even that there were not many cases in which immediate operation was not necessary. But he did think that much more care should be taken in the selection of cases for operation as regards both time and manner. It was the common belief of the public and the profession that the custom of operating freely for acute appendicitis had resulted in a great saving of life. In that case deaths from appendicitis should be less common than they used to be, unless one held the view, as some boldly do, that appendicitis was a disease that was becoming increasingly frequent, and there was no clear evidence of this. Various tables, referring to appendicitis, gastric ulcer, intestinal obstruction and peritonitis, compiled from the Registrar General's returns for England and Wales, extending over a period of twenty years, were exhibited and these seemed to show, so far as statistics can show, that deaths from appendicitis have in fact increased. Mr. Berry admitted that figures were often misleading although he did not go so far as the late Professor Black of Glasgow, who said that "statistics," like sausages, "depended a good deal upon the old woman who made them." But he thought that the figures he exhibited, if they meant anything, tended, at least, to show that the mortality from appendicitis has not diminished since the custom of operating for acute appendicitis has been so widely prevalent.

Mr. Berry held that the war had advanced surgery in some respects but in others had exerted a harmful effect. Nowadays many dangerous operations were being undertaken by men whose qualifications consisted of a few years' practice in military surgery, but such surgery has rarely occurred in civil practice. He pointed out that this kind of limited experience by no means qualified a surgeon to operate for serious conditions which occurred in civilian surgery and which called for a considerable amount of skill and experience. But country practitioners in all parts of Great Britain felt themselves competent to operate in cases of this description. Seeing that a skilled and well trained surgeon was available in nearly every large town in Great Britain, Mr. Berry thought it obviously unwise for the medical practitioner without much experience to run the risk of undertaking extensive operations except in cases of great urgency. Mr. Berry's definition of a "good surgeon" is one who always knows when to put in and when to take out a drainage tube.

THE CAUSATION AND PATHOGENESIS OF RICKETS.—Another presidential address of exceptional interest which has been given recently in the building of the Royal Society of Medicine in London, was that of Dr. Eric Pritchard, as President of the Children's Section, on Oct. 27, last. Perhaps there is no disease which is giving rise to such diverse views among those who have made a special study of the subject, with regard to causation, treatment and so on, as rickets. Perhaps, the most prevalent view at the present time is that it is a condition brought about by faulty hygiene, a disease of environment in fact. In Great Britain, Professor Noel Paton and Dr. Leonard Findlay of Glasgow are the chief upholders of this theory. Not long ago, the view mainly held as to its causation was the deficiency of the fat-soluble A vitamin and it was almost classed with the deficiency diseases on that account. Dr. Eric Pritchard is of the eminently common-sense opinion that the condition is not due to one cause but to several. He said in his address that he had chosen the subject of rickets for two particular reasons. 1. He had devoted more attention to it than to any other in medicine. 2. He regarded it as the most widely spread disease in the whole domain of pediatrics. He pointed out that lack of sunshine and want of fat had long been recognized as causes of rickets, nor was the vitamin theory new except in name. It may be mentioned here that Dr. Pritchard has pub-

lished recently the fourth edition of his book, "The Physiological Feeding of Infants and Children" in which the question of rickets is dealt with at length. In his address he drew attention to the fact that all conditions of malnutrition in infants, bad nutrition, bad hygiene, etc., must lead to rickets, because they all conduce to the development of acidosis and consequently to mineral depletion and calcium impoverishment. Rickets is an outcome of acidosis. In all conditions leading to rickets there is an excessive production of acid bodies in the system; that these acid bodies must be found in excess if the amount of food exceeds the physiological requirements. According to Pritchard the more usual contributing etiological factors are: chronic infections, vitamin stagnation, such as fat, soluble A and anti-scurbutics, metabolic disturbances, endocrine defects, such as adrenal, thyroid and pituitary insufficiency depressants. It was further pointed out that calcium depletion had three very obvious defects: 1. want of mineralization of bone; 2. muscular weakness; 3. nervous irritability. The successful prophylactic treatment of rickets is the same as that of acidosis, and the curative treatment is identical. Dr. Pritchard in concluding laid stress on the point that there is no one cause of rickets, the causes are multiple.

SMALLPOX IN LONDON.—There is an outbreak of smallpox in London, although at present, at any rate, it is mainly confined to one district. The Ministry of Health urge emphatically the desirability of vaccination. Sir George Newman, the chief medical officer of the Ministry, said a short time ago that for the whole of England and Wales only 40 per cent. of the babies born are being vaccinated, and it is my duty to say quite explicitly that this condition of things brings with it, in greater or less degree, an increased risk of smallpox to the nation as a whole. It is satisfactory to state that there has been somewhat of a rush to be vaccinated. A rather interesting incident in connection with the outbreak is that a considerable amount of insurance has been placed at Lloyd's against the risk of contracting smallpox, policies paying a total loss in the event of the insured person contracting the disease. The rates demanded are one shilling (25 cents) per cent. if the insured person had been vaccinated within the past ten years, and two shillings (50 cents) per cent. otherwise. Representation in the Royal College of Surgeons.—At the forthcoming annual meeting of the Fellows and Members of the Royal College of Surgeons to be held on November 16, a resolution is to be proposed "again affirming the desirability of admitting members to direct representation on the Council of the College which, as now constituted, only represents those members 'who hold the Fellowship.'" The resolution adds that as the college is composed of about 18,000 persons, of whom 16,000 are engaged in general practice, "that the President and Council should nominate at least two members in general practice to represent the interests of general practitioners on the Council."

TOUR FOR MEMBERS ATTENDING THE ANNUAL MEETING OF THE A. M. A.

New York, Nov. 14, 1922.

Dr. W. L. Burrage, Secretary Massachusetts Medical Society, 42 Eliot Street, Jamaica Plain, Boston, Mass.

My dear Dr. Burrage:

We are planning a tour for the members of the Medical Society of the State of New York and their friends to the A. M. A. meeting next June in San Francisco.

Our President, Dr. Arthur W. Booth, has suggested that we place our plans in the hands of all the delegates to the A. M. A., and the State Secretaries from the Eastern States.

We will therefore appreciate your sending us the names and addresses of the County Secretaries and the delegates to the A. M. A. convention from your State Society, so we may be in a position to send them particulars regarding this trip.

Kindly give this as much publicity as possible among your friends.

We expect to give a better trip at lower cost than will be possible to those traveling alone.

Thanking you in anticipation of your complying with our request, we remain,

Yours truly,

MALCOLM C. ROSE, Chairman.

152 W. 42nd Street at Broadway, Times Square.

[NOTE.—Dr. Burrage has given the desired information.]

RECENT DEATHS.

DR. ALBERT HENRY BECK, who was clinical professor of diseases of the ear at the College of Physicians and Surgeons, New York, from 1888 to 1904, and for many years one of the leading aurists of the city, died November 16, 1922, in his eighty-first year at his home in Cornwall, N. Y. He graduated from Yale in 1864 and finished his medical education in Europe and at the College of Physicians and Surgeons at Columbia in 1867. He was editor of *Hygiene and Public Health* in 1879, founded and edited the first two editions of the Reference Handbook of the Medical Sciences, was co-editor of *American Practice of Surgery* and author of "Diseases of the Ear."

He is survived by a wife, formerly Laura S. Abbott, whom he married in 1871.

DR. WILBER PRAY SAFFORD died at Brockton, November 16, 1922, at the age of sixty-seven.

He was born in Boston, February 20, 1855, was graduated from Dartmouth Medical School in the class of 1892, studied medicine further in the New York University Medical College, and settled in New York City.

He came to Brockton and joined the Massachusetts Medical Society in 1904, conducting a private lying-in hospital at No. 52 Pleasant Street. This building was recently taken by the city as the site for a fire apparatus station and the doctor was forced to move, against his wishes.

He is survived by his widow, a sister, and a nephew.

DR. GEORGE WILLIAM DOW, medical examiner of the 5th Essex District since 1900, died at his home in Lawrence of heart disease, November 21, 1922, at the age of 71. He was a member of the Staff of the Lawrence General Hospital and had been alderman and city physician. He was a Brown graduate (1877) and Harvard Medical (1881). He was M. M. S. His widow and a son survive him.

DR. FRANK HUNTER ZABRISKIE died at Greenfield, Oct. 23, 1922, aged 63. He was a member of the American Medical Association and of the Massachusetts Medical Society.

BOOKS RECEIVED FOR REVIEW.

The JOURNAL acknowledges the receipt of the following books for review:—

De Arte Physicall et de Cirurgia of Master John Arderne, Surgeon of Newcarr. Dated 1472. By SIR D'ARCY POWER. Published by William Wood & Co., New York. 60 pages. Price \$4.

The Rockefeller Foundation—Annual Report—1921. 446 pages. Privately printed.

The Treatment of Fractures. By CHARLES LOCKE

SCUDDER. Published by W. B. Saunders Co. Ninth revised edition. 719 pages. 1252 illustrations. Price \$8.50.

A Manual of Pharmacology, 2nd Edition. By TORALD SOLLMANN. 1006 pages. Published by W. B. Saunders Co.; Philadelphia and London. Price \$7.

An Outline of the Pirquet System of Nutrition. By CLEMENS PIQUET. Philadelphia and London: W. B. Saunders Co. 96 pages. Price \$2.

The Evolution of Public Health Nursing. By ANNIE M. BRAINARD. Philadelphia and London: W. B. Saunders Co. 454 pages. Price \$3.

Lectures on Dialectics. By MAX EINHORN. Published by W. B. Saunders Co.; Philadelphia and London. 244 pages. Price \$2.25.

Bibliography of Hookworm Disease—Publication No. 11. Published by the Rockefeller Foundation, International Health Board, New York City.

Laternal Curvature of the Spine and Round Shoulders. By ROBERT W. LOVETT. Published by P. Blakiston's Son & Co., Philadelphia. 217 pages. Price \$2.50.

Clinical Medicine. 1. Tuesday Clinics at the Johns Hopkins Hospital. By LEWELLYS F. BARKER. 617 pages. Philadelphia and London: W. B. Saunders Co. Price \$7.

Animal Parasites and Human Diseases. By ASA C. CHANDLER. Published by John Wiley and Sons, Inc., New York. Chapman & Hall, Ltd., London. 572 pages. Price \$4.50.

Diseases of Women. By HARRY STURGEON CROSSEN. 1005 pages. St. Louis: C. V. Mosby Co. Price \$10.

Injury, Recovery, and Death in Relation to Conductivity and Permeability. By W. J. V. OSTERHOUT. 259 pages. Philadelphia and London: J. B. Lippincott Co. Price \$2.50.

Rickets. By J. LAWSON DICK. 484 pages. New York: E. B. Treat and Co. Price \$5.50.

Gonorrhea and Impotency. Modern Treatment. By EDWIN W. HIRSCH. 172 pages. Chicago: The Solar Press. Price \$3.50.

Bronchoscopy and Esophagoscopy, A Manual of Peroral Endoscopy and Laryngeal Surgery. By CHEVALIER JACKSON. 346 pages. Philadelphia and London: W. B. Saunders Co. Price \$5.50.

Chloroform Anesthesia. By A. GOODMAN LEVY. 159 pages. New York: William Wood & Co. Price \$2.25.

Aids to Tropical Hygiene. By COLONEL R. J. BLAKHAM. 240 pages. New York: Wm. Wood & Co. Price \$1.75.

Miracles and the New Psychology. A Study in the Healing Miracles of the New Testament. By E. R. MICKLEM. 142 pages. New York and London: Oxford University Press. Price \$2.50.

Public Relief of Sickness. By GERALD MOROAN. 195 pages. New York: The Macmillan Co. Price \$1.50.

Brain Abscess, Its Surgical Pathology and Treatment. 297 pages. New York: The Macmillan Co. Price \$7.

Selected Works of Sudenham. By JOHN D. COURIE. Published by William Wood & Co., New York. 153 pages. Price \$3.

Polaris, The Story of an Eskimo Dog. By ERNEST HAROLD BAYNES. 137 pages. New York: Macmillan Co. Price \$1.50.

The Biology of Death. (Monographs of Experimental Biology.) By RAYMOND PEAR. 275 pages. Philadelphia and London: J. B. Lippincott Co. Price \$2.50.

NEW ENGLAND DERMATOLOGICAL SOCIETY.

The regular quarterly meeting of the New England Dermatological Society will be held at the Boston City Hospital, in the Surgical Amphitheatre, on De-

ember 13, 1922, at three thirty p.m. All physicians who are interested are invited to attend.

SPECIAL MEETING TO DEMONSTRATE THE SCHICK TEST.

All physicians doubtless know something about the Schick test, but do they know enough? The value of the test in practice depends upon its application in the right way and above all on correct reading of the results. It is necessary to distinguish four kinds of results: namely, the negative reaction, the simple positive reaction, the pseudo-reaction, and the positive combined reaction, which is a combination of pseudo and positive reactions. To learn to differentiate these reactions is relatively easy when typical examples of each have once been seen.

The Norfolk District Medical Society recently held a special meeting at which demonstrations of the test were given and the meeting was well attended. The Suffolk District Medical Society now plans to hold a similar special meeting on December 5th.

At this meeting specially qualified speakers will discuss briefly the public health aspect, the practitioner's viewpoint, and the immunological principles of the test.

The technique of performing the test will be demonstrated and the various kinds of reactions will be illustrated by actual cases. Physicians who have not yet familiarized themselves with these matters will, it is hoped, take this opportunity so to do. Even though they might not contemplate performing the test themselves, they would then be better prepared to second the health authorities in their efforts to eliminate diphtheria.

THE WORCESTER DISTRICT MEDICAL SOCIETY.

Dr. A. Wilson Atwood has issued the following tentative programme for the rest of the year:

December 13, 1922—The meeting will be held in the G. A. R. Hall, Pearl Street. Programme: "Prostatectomy," Dr. J. D. Barney of Boston; "Anomalies of the Kidney," Dr. Walter D. Bieberback; "A Series of Interesting Pyelograms in Genito-Urinary Lesions," Dr. Philip H. Cook.

January 10, 1923—The meeting will be held at the Worcester State Hospital, Belmont Street, at 4.15 P. M. Programme: "A Discussion of Status Thymico-Lymphaticus and the Inherent Compensatory Possibilities," Dr. Walter Timme, New York City. Discussion will be opened by Dr. W. A. Bryan.

February 14, 1923—The meeting will be held at the Worcester City Hospital at 4.15 P. M. The programme will consist of a series of papers by members of the staff.

March 14, 1923 The meeting will be held at St. Vincent's Hospital at 8.15 P. M. The programme will consist of a series of papers by members of the staff.

April 11, 1923—The meeting will be held at Memorial Hospital at 8.15 P. M., and the programme will consist of a series of papers by members of the staff.

May 9, 1923—Annual meeting and banquet.

Approximately 75 patients visited the special cancer clinics at the Worcester hospitals as the result of the publicity given to the matter by the last public meeting of the Society and the splendid work of the press.

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Hyannis,—February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol South District:—Fall River,—May 3, 1923.

Essex North District:—Haverhill, (Semi-Annual Meeting)—January 3, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Essex South District Medical Society meets Wednesday, December 13th, at Beverly Hospital, Beverly, 6 p.m. Speakers: Dr. W. P. Bowers, Managing Editor *Boston Medical and Surgical Journal*; Dr. John D. Adams, Boston; Dr. P. F. Johnson, Beverly. R. E. Stone, Secretary.

Suffolk District:—December 27, 1922; January 31, 1923; February 28, 1923; March 28, 1923: (Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District:—Meeting, Wednesday, January 31, 1923.

Middlesex East District:—Jan. 24, 1923. The Nursing Problem. Speaker to be announced later.

March 21, 1923. Mental Factors in Childhood. Paper by Dr. William Healy.

April 18, 1923. Interpretation of Laboratory Findings. Papers by Dr. E. G. Crabtree and one to be announced later.

May 9, 1923. Annual Meeting.

All meetings except the annual meeting will be held at the Harvard Club in Boston. A. E. Small, Secretary.

Worcester District meetings in Worcester, Dec. 13, 1922, Jan. 10, Feb. 14, March 14, April 11 and May 9, 1923, the last named date being the annual meeting.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

December, 1922:—New England Dermatological Society Meeting, Wednesday, December 13, 1922, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital; C. Guy Lane, Secretary.

December 26-30, 1922:—American Association for Advancement of Science meets in Boston.

December, 1922:—Boston Medical History Club will meet December 18, 1922.

January, 1923:—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston; W. H. Allen, Mansfield, Mass., Secretary.

January, 1923:—Boston Association of Cardiac Clinics. Meeting January 13, 1923, at 8.15 P. M. Boston Lying-In Hospital (New Hospital). Subject: Pregnancy and Heart Disease.

January, 1923:—Boston Medical History Club will meet January 15, 1923.

February, 1923:—New England Dermatological Society Meeting, February 14, 1923, at 3.30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital; C. Guy Lane, Secretary.

February, 1923: Boston Medical History Club will meet the third Monday of this month.

March, 1923:—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary.

March, 1923:—Boston Association of Cardiac Clinics. Meeting March 15, 1923, at 8.15 P. M. Boston City Hospital. Subject: Prevention and Relief of Heart Failure.

March, 1923: Boston Medical History Club will meet the third Monday of this month.

April, 1923:—New England Dermatological Society Meeting, April 11, 1923, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital; C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston; W. H. Allen, Mansfield, Mass., Secretary.

April, 1923:—Boston Medical History Club will meet the third Monday of this month.

May, 1923:—Massachusetts Society of Examining Physicians (date and place undecided). American Pediatric Society Meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind.; H. C. Carpenter, Secretary.

May, 1923:—Boston Association of Cardiac Clinics. Meeting May 17, 1923, at 8.15 P. M. Boston City Hospital. Subject: Rheumatism and Heart Disease.

June, 1923: American Medical Association, San Francisco, June 25-29, 1923; Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923: Massachusetts Association of Boards of Health, July 26, Nantasket; W. H. Allen, Mansfield, Mass., Secretary.

*Deceased September 2, 1922.

The Boston Medical and Surgical Journal

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THE WASSERMANN TEST.

I. WASSERMANN TESTS IN A BOSTON MATERNITY HOSPITAL.

BY DAVID L. BELDING, M.D., BOSTON, AND
CHARLOTTE B. ADAMS, BOSTON.

[From the Evans Memorial.]

WASSERMANN surveys upon hospital or dispensary patients who suffer from various pathological conditions including syphilis, do not represent the normal incidence of syphilis or the true per cent. of positives among the so-called healthy population. Theoretically, maternity cases which present a physiological rather than a pathological condition, more closely approximate the normal. Practically, changes in the blood of the pregnant woman so affect the test that maternity patients are no more representative than ordinary hospital cases. In spite of this fact and with the additional knowledge that statistical deductions from small groups are more or less untrustworthy, it seems fitting to present a series of 5198 maternity cases on whom routine Wassermann tests were made at the Robinson Memorial, Massachusetts Homœopathic Hospital, Boston, in the hope that it may add to the rapidly accumulating mass of evidence regarding the extent of syphilis among various classes of society. It is also of interest, in that

it touches directly upon the great question of congenital syphilis.

Syphilis and the Wassermann Test.—It is a matter of common knowledge that the Wassermann test, based on a non-specific fixation, does not detect all cases of syphilis. Negative tests are frequently obtained in syphilitics, particularly in old or treated cases, and infrequently positive reactions are obtained in other diseases. Therefore, a Wassermann survey, although the most reliable method at our command for determining the existence of syphilis, does not represent the actual extent of the disease in a community, and the incidence thus determined must be interpreted from the standpoint of positive Wassermann tests rather than the number of syphilitics.

It should be clearly understood that the statistics in this paper are the results of a Wassermann survey among pregnant women and do not represent the actual incidence of syphilis in greater and suburban Boston. Neither are they comparable with a Wassermann survey of a similar body of non-pregnant women, owing to certain technical variations in the reaction due to pregnancy, upon which preliminary studies are now under way.

In latent or hidden syphilis, the type ordinarily found in maternity cases, Craig¹ found that 32 per cent. gave a negative Wassermann test. Thus a Wassermann survey underestimates the number of cases which have had or still have clinical syphilis. Ordinarily with cholesterolized

antigens, comparatively few non-syphilitic fixations are obtained; but in maternity cases this number is increased, approximately ten times, while the number of syphilitics with negative tests remains unchanged. Curiously, these errors so balance in maternity cases that the per cent. of positives approximates the actual number of syphilis in a community, even though all cases of syphilis are not detected and a corresponding number of non-syphilitics is included.

Technique.—In all studies regarding the prevalence of syphilis by means of the Wassermann test, the method of performing the test and the type of antigen should be carefully recorded. Otherwise subsequent comparisons are impossible owing to technical differences in determining what constitutes a positive Wassermann.

During 1917 and 1918, 2470 routine cases were run with a special technique in which a cholesterolized and an acetone insoluble antigen were used. During 1919 and 1920, 2728 cases were tested by the standard method of the Massachusetts Department of Public Health with two cholesterolized antigens. (Hinton.²) Our statistics, unless otherwise specified, are based upon a 0.4 per cent. cholesterolized beef heart antigen, which was used throughout both series. The close results with the same antigen, the per cent. of positives being 9.1 for Series I and 9.3 per cent. for Series II, suggest that the actual technique of performing the test is perhaps less important than the type of antigen and the method of reporting.

The two methods which are compared in Table No. 2, differed chiefly in regard to the total volume, preliminary titration of serum and method of reporting, although based upon the same hemolytic system and upon similar principles. In Series II the standard method of the Massachusetts Department of Public Health was followed, except in the number of antigens and the method of reporting. Whereas in the State Wassermann Laboratory three cholesterolized antigens are employed and the results are reported as positive when all three give complete or moderate inhibition, doubtful when antigens A and B show 75 per cent. hemolysis, with slight or no hemolysis with C, and negative when all three give complete hemolysis; in Series II, two cholesterolized antigens, one of which for a short period was replaced by a plain alcoholic, were used and the positives were graded according to the time-honored but unsatisfactory 1 to 4 plus system.

The particular cholesterolized antigen upon which the statistics are based, through the courtesy of Dr. W. H. Hinton of the Wassermann Laboratory, Massachusetts Department of Public Health, has been compared with the standard State antigen on 108 questionably syphilitic cases. Agreement resulted in 95 cases while the State antigen proved stronger in 4 and weaker in 9. In 78 cases, positive with one or

both antigens and also positive with a third, the State standard was positive in 96.1 per cent. and our antigen in 97.4 per cent. Except for an occasional weaker reaction with one or the other, the two antigens may be considered practically of equal strength and value.

TABLE NO. 1.

Antigen.

	Cholesterolized Antigen No. 1.				
	Positive.	Moderate Positive.	Weak Positive.	Negative.	Total.
Standard Cholesterolized Antigen of Massachusetts					
Positive	57	2	—	—	59
Moderate Positive	2	1	—	—	3
Weak Positive	1	3	7	2	13
Negative	—	—	3	30	33
Total	60	6	10	32	108

Eighty-seven per cent. of the laboratory work was performed by the same technician, thus largely eliminating the personal equation. The blood was taken in the prenatal clinic and in the delivery room. Tests were run twice a week in Series I, and three times in Series II.

Results.—Positive reactions of varying degrees were obtained in 9.2 per cent. of cases, of which 7.8 per cent. would have been reported as positive in laboratories where doubtful reactions (1-plus) were disregarded, and 4.6 per cent. were strongly positive. The total number of negroes, 3.5 per cent. of all patients, is too small to cause any appreciable change in the per cent. of positives. The minor differences between the two series in Table No. 3, is largely due to the different method of reporting, an eight-point system being used in Series I and a four-point system in Series II.

Clinical Syphilis.—The positive cases have been classified clinically as (A) *Definitely Syphilitic*, when there is no possible doubt as to the clinical diagnosis; (B) *Suspicious*, when there are several suggestive symptoms but the evidence is not conclusive; (C) *Suggestive*, when a single symptom or sign suggestive of the disease is present; and (D) *No Indication*, when no clinical evidence can be obtained. The statistics are given on a basis of 4988 cases rather than the original 5198, owing to the fact that in Series I only 207 of the 224 positive cases examined in the prenatal clinic entered the hospital for delivery. They are arranged according to the inclusion or exclusion of the findings in the child of the present pregnancy. In general "Exclusive Child" refers to the clinical evidence available at the prenatal clinic and "Inclusive Child" includes the total clinical evidence at the time the patient leaves the hospital.

The small percentage of cases which give clinical evidence of syphilis is in accord with the findings of most investigators of syphilis in

TABLE NO. 2.

Technique.

	Series I.	Series II.
Fixation	Waterbath @ 37½° C.	Waterbath @ 37½° C.
Hemolytic System		
Cells	Sheep	Sheep
Amboceptor	Rabbit	Rabbit
Complement	Guinea-pig	Guinea-pig
Volume	1/5 original Wassermann	½ original Wassermann
Measurements	In bulk	In bulk
Preliminary Titration Method	Cross-titration varying both amboceptor and complement	Combined
Time	30 minutes	30 minutes
Antigen	Without	Without
		For purpose of testing antigen an extra titration with antigen is run
Negative sera	Without	Without
Cells	5% sensitized with same amount amboceptor as in preliminary titration	5% sensitized with 2 units of amboceptor
Complement	1½ units	2 units
Serum		
Number of tubes	4	1
Amount in c.c. in terms of original Wassermann Test	0.2, 0.1, 0.05, 0.025	0.2
Control	0.4, 0.05	0.4
Inactivation	30 minutes @ 55° C.	30 minutes @ 55° C.
Allowance for anti-sheep hemolysin	Partial	None
Time		
Fixation	45 minutes	40 minutes
Incubation	60 minutes	60 minutes
Antigens		
Number	2	2
Source	No. 1 Beef heart	No. 1 Beef heart
Type	Cholesterolized	Cholesterolized
	No. 4 Beef heart	No. 2 Human heart
	Acetone	Standard
	Insoluble	Massachusetts
		Cholesterolized
Ratio antigenic to anticomplementary dose	1:15	1:15
Ratio amount used in test to anticomplementary dose	1:5	1:2 or greater
Antigenic units	3	3
Reading	1 to 4 plus for each tube, representing 75, 50, 25 and 0 per cent. hemolysis	1 to 4 plus for a single tube

TABLE NO. 3.
Per Cent. Positive.

	Series I.	Series II.	Total.	
			Negro and White.	White.
Total cases	2470	2728	5198	5022
Positive cases	224	254	478	448
Per cent. positive,				
all grades	9.1	9.3	9.2	8.9
4-Plus	4.2	5.0	4.6	4.5
3-Plus	1.9	1.0	1.4	1.3
2-Plus	2.0	1.6	1.8	1.7
1-Plus	1.0	1.7	1.4	1.4
Reportable				
(4, 3, 2-plus)	8.1	7.6	7.8	7.5

TABLE NO. 4.

Clinical Syphilis.

Cases	Exclusive Child.			Inclusive Child.		
	Series I.	Series II.	Total.	Series I.	Series II.	Total.
	1.	II.		1.	II.	
A. Definitely syphilitic	207	254	461	207	254	461
B. Suspicious	4.8%	6.7%	5.9%	9.2%	10.2%	9.8%
C. Suggestive	9.7	13.4	11.7	15.5	23.6	19.9
D. No indications	21.3	21.6	21.5	22.7	27.2	25.2
	64.2	58.3	60.9	52.6	39.0	45.1

women. Since these cases chiefly represent "hidden" syphilis, it is difficult to obtain clinical evidence of the disease even by most careful questioning as to history, children, symptoms, fetal deaths, etc. As a rule the patients have no knowledge of, or show no signs of syphilitic infection. With all available information only 9.8 per cent. can be classed as definitely syphilitic and 19.9 per cent. more as probably syphilitic, while at the prenatal clinic these figures fall to 5.8 and 11.7. It is indeed a marked contrast to syphilis in the male that less than 10 per cent. of females give definite clinical findings, less than 20 per cent. more present suspicious symptoms or histories, and 45 per cent. give no indication whatever. For reasons previously stated concerning the Wassermann test in pregnant women and the probable inclusion of non-syphilitics, the 10 per cent. represents a minimum figure.

The variation between the two series in the per cent. of definite and suspicious syphilis, demonstrates the need of using large numbers of cases in the compilation of medical statistics.

Comparative Statistics.—The results of routine Wassermann tests upon pregnant women in nine other cities have been collected from the literature. With one exception only cities reporting five hundred or more cases have been included. While the average of 9.03 per cent. for 16,639 cases is practically the same as 9.2 per cent. for Boston, it would fall considerably below this figure if the large number of negroes in Baltimore (50 per cent.) and in Washington (77 per cent.) were eliminated. It would seem that our 7.8 per cent. for reportable positives (eliminating the doubtful 1-plus reactions), closely approximates the general incidence of positive Wassermanns in this class of patients.

TABLE NO. 5.

Comparison of Cities.

Cities.	Total Cases.	Per Cent. Positive.
Ann Arbor—3, 4.....	1,024	5.8
Baltimore—5.....	4,000	11.2
Brooklyn—6, 7.....	2,714	8.0
Chicago—8, 9, 10.....	437	8.0
London—11.....	677	3.9
Minneapolis—12.....	857	6.2
New York—13, 14, 15.....	4,882	8.0
Paris—16.....	1,185	4.4
Washington—17.....	863	27.8
Total.....	16,639	9.03

Comparisons of this kind, even with comparatively large numbers, are of little value, owing to different methods of performing the test and variations in the source of material. For this reason all Wassermann statistics should be accompanied by the method of performing the test and a description of the subjects and their environment. In order to show the necessity of recording certain information relative to the patients, and for the purpose of presenting our

statistics for future comparisons, the influence of the following conditions is considered: I. Individual Variation, (1) Age, (2) Time married, II. Nationality. III. Social and Economic Position, (1) Wealth, (2) Occupation of husband, (3) Residence.

Individual Variation.—An accurate comparison of syphilis in women cannot be made unless groups of approximately the same age and length of married life are selected. For this reason the excellent records for Boston of Solomon and Solomon,¹⁸ upon women averaging 37 years old and married 11.09 years, which were selected from the standpoint of neurosyphilis, cannot be compared with the present series of younger women. Presumably since a large per cent. of syphilis in women is acquired through the husband, the older the patient and the longer the period of married life, the greater becomes the opportunity for infection.

(1) *Age.*—The distribution according to age, as shown in Table No. 6, indicates that nearly 80 per cent. of the patients at the Robinson Memorial Hospital were comparatively young women under 30 years. The average age of 461 positive cases was 26.52 years and of 500 negative 26.16.

TABLE NO. 6.

Age.	Distribution per 1000.	Per Cent. Positive.		Total.
		Series I.	Series II.	
15-20 years	136	8.8	8.6	8.7
21-25 "	386	9.6	8.8	9.2
26-30 "	271	8.1	9.4	8.8
31-35 "	129	7.7	9.5	8.7
36-40 "	64	11.3	11.3	11.3
41-45 "	13	19.4	14.7	16.9
46-50 "	1	0.0	33.3	14.3

If active syphilis were under consideration certain ages would probably show an increased number of positives, but since the Wassermann test includes all stages of the disease we should expect, in view of the longer period of exposure, a greater per cent. with advancing years, particularly if we assume that increased age is comparable to longer married life. The smaller number of cases above 35 years in some measure accounts for the unusually high per cent., but 00 cases are at least sufficient to warrant the conclusion that the older women show an appreciable increase in the number of positives.

Series II gives a steady rise with increasing age, but Series I shows an unexpectedly high rate in the 21-25-year group. Naturally we should expect to find a greater number of active syphilis during this period, which corresponds to the first years of married life, but more probably it denotes statistical error due to insufficient data.

(2) *Time Married.*—Comparing 461 positive cases with 500 negative, comprising the same nationalities, the negative series shows a greater number of primipare, 44.6 per cent. vs. 38.6 per

cent., and correspondingly a shorter average period of married life, approximately 2 months. In these cases the average number of conceptions was 2.46 for the positives and 2.22 for the negatives, which indicates that in fertile women syphilis has no influence on the number of conceptions. The greater number of multiparæ and the longer period of married life in the positive series, show that the latter exerts some degree of influence upon the percentage of positives. However, these figures are merely suggestive, since it is assumed that the two groups of 500 and 461 represent the correct average for all negative and positive cases.

Nationality and Race.—The influence of race and nationality, particularly in the case of the negro, is of sufficient importance to demand separate consideration, and for that reason only a single table for the purpose of interpreting our statistics is presented here. Except in the case of the Negro and the Jew the nationality is determined by the birthplace of the patient.

TABLE NO. 7.
Race and Nationality.

Nationality.	Distribution per 1000.	Per Cent. Positive.
Negro	35.2	17.1
Greek	7.4	16.2
Armenian	9.2	13.0
Scotch	12.0	10.0
American	553.1	9.4
French	2.2	9.1
Roumanian	2.2	9.1
Canadian	96.9	8.9
Irish	79.9	8.8
Germanic	10.2	7.8
Jewish	112.2	7.4
Scandinavian	16.6	7.2
British	35.9	6.7
Slavic	4.6	4.4
Turkish	6.2	3.2
Italian	10.6	1.9
Miscellaneous (11 nations)....	5.6	17.9

Social and Economic Position.—The social and economic status of the patient may be shown indirectly by the financial condition, the occupation of the husband and the residence. Owing to local interest, special attention is given the distribution of cases in greater and suburban Boston.

(1). **Wealth.**—The price paid for hospital accommodations, while not an absolute indication of the financial condition, nevertheless gives a fairly representative idea of the resources of the patient. The patients may be grouped into three main classes, according to the hospital charges effective in 1917.

TABLE NO. 8.
Financial Status.

Weekly Hospital Rate.	Distribu- tion per 1000.	Negro and White.	Per Cent. Positive.
Free and Reduced	99	11.1	10.7
\$12.00 to \$15.00	742	9.1	8.7
\$17.00 to \$21.00	159	8.6	8.6

There is but little difference between the grades of paying patients, but a decided difference, 2 per cent., between the semi-charity cases and the independent cases. The elimination of the negro causes practically no change in this situation, and the conclusion may be drawn that the prevalence of syphilis in some measure depends upon the financial status of the patient.

(2). **Occupation.**—Classification of the husband's occupation presents rather surprising results. Indoor occupation ranges higher than outdoor, clerical work giving the highest percentage, 15.1. Unskilled labor gives 11.4 per cent., as compared with 8.6 per cent. for skilled. Mechanical and manufacturing, 8.6 per cent., and public service, 7.8 per cent. are below the average, and unmarried women, although few in number, have an unexpectedly low rate, 4.8 per cent. Evidently the percentage of syphilis varies in different occupations, but in general it follows their economic status. These figures again emphasize the necessity of care in comparing statistics regarding the prevalence of syphilis.

TABLE NO. 9.

Occupation.	Per Cent. Positive.	
	Distribu- tion per 1000.	Negro and White.
Agriculture, Forestry and Fisheseries	11	8.9
Clerical	45	15.1
Domestic and Personal....	64	9.4
Manufacturing and Mechanical	445	8.6
Professional	30	10.7
Public Service	72	7.8
Trade	160	9.5
Transportation	143	10.2
Unmarried Women.....	25	4.8
Not given.....	4	5.0
No occupation.....	1	0.0

(3). **Residence.**—Ordinarily the residence of the patient has little direct bearing upon her economic or social condition, owing to the mixed residential character of each community. Except in a few cases it would be manifestly inaccurate to draw conclusions in comparing one community with another, unless the general social status was markedly different. Likewise, comparisons to be accurate should be based on large numbers which are not available for the individual suburban towns. However, statistics showing the per cent. of positive Wassermann tests in different parts of suburban Boston are perhaps of local interest and may be presented here with the provision that no unwarranted conclusions be drawn. The figures for other cities (Table No. 6), while of interest as statistical compilations of various institutions, with the exception of New York, scarcely warrant comparison with Boston, which is a port of embarkation and debarkation in close touch with foreign shores and possessing a comparatively large mixture of foreign-born population.

TABLE NO. 10.
Zone Distribution.

Residence.	Distribution per 1000.	Per Cent. Positive.			
		All Degrees.		Strong.	
		Negro and White.	White.	Negro and White.	White.
Boston, Central District.....	221	10.8	10.2	5.7	5.4
Boston, excluding Central District.....	447	9.2	9.2	4.6	4.6
Suburbs within eight-mile radius.....	277	8.5	7.8	3.8	3.5
Outside Suburban Boston.....	55	6.6	6.7	4.8	4.8
Greater Boston.....	668	9.8	9.6	5.0	4.9
Boston and Suburbs within eight miles.....	945	9.4	9.0	4.6	4.5
Boston and Suburbs, excluding the Central District.....	724	8.9	8.7	4.3	4.2
All localities.....	1000	9.2	8.9	4.6	4.5

Ninety-four and one-half per cent. of all house cases admitted to the Robinson Memorial Hospital from 1917 to 1920, inclusive, came from Boston or suburbs within an eight-mile radius, so that for all practical purposes the entire series may be considered as coming from one locality.*

Greater Boston	66.8%
Suburbs within 8 miles	27.7
Massachusetts	4.7
United States	0.7
Canada and Mexico	0.1
	100.0%

(a) *City vs. Suburbs.*—The striking fact in the residential distribution of syphilis is the higher urban rate.* Irrespective of groupings, the central district of Boston, comprising the North, South and West Ends, always gives the highest per cent. Greater Boston exceeds the surrounding suburbs, and they in turn the rest

of Massachusetts. These facts cannot be explained from the standpoint of nationality or race, since the exclusion of the negro, the only appreciable factor, does not materially affect the per cent. of positives. On the basis of the cost of hospital room, the central Boston patients are upon the same financial level as the greater Boston and suburban for both positive and negative cases, and the semi-charity cases, which had the highest per cent. of positives, are equally distributed. No other explanation seems tenable except that syphilis is more prevalent in central Boston among the women who enter the hospital as house cases, than in the same economic class of patients from the suburban districts.

(b) *Suburban Distribution.*—Further information may be gained by arranging the residential districts and suburbs of Boston into geographical groups.* In so doing, however, the decreased number of cases makes the results of relatively less value.

(c) *Social Status.*—If we divide the thirty cities and towns into four classes, according to the social standing of the population, a corresponding difference is found in the percentage of positives. Naturally, this arbitrary division is somewhat dependent upon the person making the classification, since cities and even towns contain several social strata, but all observers would agree upon the difference between the highest and lowest class. In order to eliminate all possible error, only the white race has been considered. The results indicate that the social and intellectual standing of a community is

TABLE NO. 11.
Geographic Distribution.
Per Cent. Positive.

Residence.	Distribu- tion per 1000.	All Degrees.			
		Negro and White.	White.	Negro and White.	White.
Boston, Central District.....	221	10.8	10.2	5.7	5.4
Northeast of Boston.....	49	9.9	9.9	5.4	5.4
North of Boston.....	130	9.2	8.7	4.5	4.4
Northwest of Boston.....	120	9.0	8.7	3.7	3.2
West of Boston.....	50	8.4	8.1	4.0	3.6
Southwest of Boston.....	182	8.6	8.7	4.5	4.2
South of Boston.....	167	8.7	8.7	4.0	4.0
South Boston.....	26	10.1	10.1	5.4	5.4
Outside sub-urban Boston.....	55	6.6	6.7	4.8	4.8

*Boston, excluding central district, comprises Allston, Brighton, Charlestown, Dorchester, East Boston, Hyde Park, Jamaica Plain, Mattapan, Readville, Roslindale, Roxbury, South Boston and West Roxbury.

The suburbs within a radius of eight miles are: Arlington, Belmont, Brookline, Chelsea, Everett, Malden, Medford, Melrose, Milton, Newton, Quincy, Revere, Somerville, Watertown, Waverley, Winchester and Winthrop.

TABLE NO. 12.

Social Distribution.

Class.	Cities and Towns, Number.	Number per 1000.	Per Cent. Positive.	
			All Degrees.	Strong.
High	8	38	7.6	3.7
Medium High	9	121	8.0	3.8
Medium Low	7	435	8.4	4.1
Low	6	351	10.3	5.7
Total	30	945	9.0	4.6

*Northeast, East Boston, Winthrop, Revere; North, Charlestown, Chelsea, Everett, Malden, Medford, Melrose; Northwest, Winchester, Somerville, Arlington, Cambridge, Belmont, Waverley, Watertown; West, Allston, Brookline, Brighton, Newton, Jamaica Plain; Southwest, Hyde Park, Mattapan, Readville, Roslindale, Roxbury, West Roxbury; South, Dorchester, Milton, Quincy.

TABLE NO. 13.

Residential Distribution.

Residence.	Distribu- tion per 1000 Women.	Per Cent. Positive.		Positive, Strong.
		All Degrees.	Negro and White.	
1. East Boston	21	13.7	13.7	6.9
2. Charlestown	31	11.5	11.5	6.4
3. Cambridge	59	11.2	9.6	4.7
4. Boston, Central District	221	10.8	10.2	5.7
5. South Boston	26	10.1	10.1	5.4
6. Chelsea	32	9.3	8.8	5.0
7. Dorchester	149	9.0	9.0	4.3
8. Revere	20	8.9	8.9	5.0
9. Roxbury	161	8.5	8.7	4.1
10. Everett	29	8.4	6.6	2.8
11. Medford	21	8.4	8.5	2.8
12. Somerville	48	6.7	6.7	2.5

closely associated with the prevalence of syphilis.

The various communities which have furnished at least 100 patients may be arranged according to the per cent. of positives, but it should be remembered that statistics from small groups are unreliable.

SUMMARY.

1. In 5198 routine cases in a Boston Maternity Hospital, the Wassermann test showed some degree of positivity in 9.2 per cent., was definitely positive in 7.8 and strongly positive in 4.6.

2. Only 9.8 per cent. of the positive cases gave definite clinical evidence of syphilis, although an additional 19.9 showed suspicious findings.

3. Positive Wassermann tests, with cholesteralized antigens, in pregnant women are not comparable to similar tests in non-pregnant, owing to certain blood changes, and therefore do not either represent the actual incidence of syphilis in a community or the per cent. of positive tests in healthy non-pregnant women.

4. Statistical studies from various cities cannot be accurately compared, owing to differences in technique and material. For reference all Wassermann surveys should be accompanied by a statement of the method of performing the test and a description of the status of the patient.

5. Owing to longer exposure, the per cent. of positives increases with age and length of married life.

6. The high incidence of syphilis in the negro, twice that in the white race, necessitates the exclusion of this race in certain statistical comparisons. The prevalence of syphilis varies with different nationalities.

7. The per cent. of positives increases inversely as the wealth of the patient, and also differs according to occupation.

8. In Boston the urban rate is higher than the suburban and the highest class residential districts show the lowest per cent. of positives,

which, in this instance, explains the lower suburban rate.

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CHANGES THAT HAVE OCCURRED IN THE PAST 25 YEARS HAVING AN EFFECT ON THE PROGRESS OF MEDICINE.*

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TWENTY-FIVE years ago last October, fresh from school and hospital, I came to Worcester and, to use the popular phrase, "hung out my shingle." During this period many changes have occurred in our ideas about some diseases and in the manner of treating many, and it has seemed to me that it might be interesting to review some of these changes and possibly prophesy some into the future. Influences within, as well as without the profession, have worked to bring medicine to its present standard, and will, in the future, exert, more than ever, an unavoidable effect on our work and our ideals.

To begin with, let me recite some of the conditions under which I was educated, and the views held at that time about some of the common diseases. In doing this I shall have to apologize for being personal somewhat, and for citing facts and incidents confined to this particular region, but I have no doubt that what I have to say, by merely changing names and things peculiar to any locality, could apply to a practitioner in any other section of the country.

Twenty-five years ago the Harvard Medical School occupied the one building on the corner of Boylston and Exeter Streets. The class that I was enrolled in was the last class to go through on the three-year schedule. A college degree was not required as an entrance qualification. The faculty included such men as E. M. Wood in chemistry, Thomas Dwight in anatomy. Councilman began his first year in the chair of pathology with my class. F. C. Shattuck and Mason headed the list in clinical medicine, and R. H. Fitz had just been transferred to the chair of theory and practice. David Cheever had just resigned the chair of surgery and J. Collins Warren had taken his place. Maurice

*Read before the Worcester District Medical Society, at Clinton, May 10, 1922.

Richardson was Professor of Clinical Surgery. William Richardson was Professor of Obstetrics, and Thomas Retch, Professor of Children's Diseases. All these men held prominent positions in the various hospitals.

The Massachusetts General and the Boston City were the two leading hospitals where we went for clinical teaching. At that time the number of internships in the various hospitals was such that, I venture to say, not more than one-half of each graduating class could be given the opportunity for hospital work. Today the Medical School is in its present palatial quarters and is surrounded by a new group of hospitals which, with the older hospitals, gives it a capacity for teaching hardly realized twenty-five years ago. The number of internes in all these institutions has been so largely increased that opportunity is given to nearly every student to round off his education by hospital training.

Outside of Boston the Worcester City Hospital was then looked upon as one of the most attractive, two of my own classmates coming up here for their hospital training. In Worcester itself there were four general hospitals. The City, which then consisted of K, F, G and M, with C and D and the Winslow Surgery as very recent additions. The out-patient was confined to the two or three small rooms in the basement of the Administration Building. The Memorial Hospital was then confined to the present Administration Building and the building next to it, now C and M, I believe, and the out-patient Washburn Free Dispensary. St. Vincent's was in the old wooden building at the junction of Vernon and Winthrop Streets, and the Hahnemann in an old wooden building half-way up the hill on Providence Street. The Isolation Hospital was completed and occupied either the year I came here or the year following. None of these hospitals had laboratories as we regard laboratories today.

During this twenty-five-year period all these hospitals have expanded until now the City has a capacity of more than 300 beds, with more than 50 rooms for private patients. The Memorial has 150 or more with a still greater proportionate increase in private rooms. The St. Vincent's and Hahnemann occupy new buildings with their capacity doubled or trebled. The Isolation has been added to and now includes under its management the Putnam Ward for the care of the City's tubercular patients. Those hospitals that maintained out-patient departments have seen their work expand until new buildings have been occupied and new departments added, while the laboratory has become an indispensable part of the equipment.

In the smaller cities and towns in the district which this Society represents, hospitals have and still are being organized. As I have said this picture is only a regional one, and by the substitution of other names, could be applied

to any other region in the neighborhood of our large cities throughout the country.*

It means that medical education has developed and become more thorough. The student is more carefully trained in history-taking and the use of apparatus in making a diagnosis. It also means that the confidence of the public in hospitals has grown so that now not only the poor, but those who have good, comfortable homes, often prefer to go to a hospital for treatment. Especially is this so in surgery, since it is rather unusual to hear of an operation being done in a private house.

The views held of certain diseases in my student days are well worth comparing with the views we take of those same diseases today.

It was only five years before my going to the medical school that Fitz had demonstrated to the world the rôle played by the appendix in peritoneal inflammations. The treatment of appendicitis was not then so thoroughly regarded as surgical as now. The medical side of a hospital rather enjoyed twitting the surgical side over the fact that it could show a lower mortality rate for this disease than the surgical. It hardly needs an explanation for this.

I well remember a certain day at the Massachusetts Hospital, where we were attending a clinic conducted by Dr. Warren, when an emergency case of appendicitis came in. Dr. Warren, thinking it a good opportunity to demonstrate the value of a consultation before us, called in Drs. Fitz, Shattuck, Eliot and Porter, each of whom gave his opinion of the case and his treatment of it. The consensus of opinion was that it was a favorable case for operation. Today there would be no discussion on that point. A majority of cases seen in the hospitals then were the advanced cases and it was comparatively rare to see a clean case operated upon.

But at that time there were men, among whom I especially recall Dr. Worcester of Waltham, who were urging operation as soon as the diagnosis had been made, and we know their position has prevailed until not only the profession but the general public is alive to the value of early operation in this disease.

The correctness of this position is shown in a comparison of the statistics of the mortality rate between the past and the present. Malaria was, or seemed to be, more prevalent then than now, and various ideas were advanced as to its etiology—the old miasma theory was hardly dead. Around Boston, residence along the banks of the Charles or the Mystic River, was supposed to render people more liable to it. The relation of the mosquito to the spread of the disease was demonstrated later.

There was much discussion in those days, and we were often called on to explain the difference between contagion and infection to inquisitive patients, and were sometimes hard put to give a satisfactory one. Diphtheria, scarlet fever and measles were given as types of con-

tagious diseases, while typhoid was the great example of an infectious one. The progress made in the handling of this last-named disease is one of the greatest achievements in modern medicine.

Many of those present can recall the cheering and admiration evoked when we stood on the sidewalks in 1898 and saw our four companies march off to the war with Spain. Fine, strong manhood they were! Some months later we all stood again ready to give them an enthusiastic welcome home. Did we cheer as that column passed through our lines? It was the most appalling sight I had ever seen in Worcester, and that line of emaciated, worn and unrecognizable men moved along more like a funeral procession, some of them too feeble even to sit up. Contrast that scene with the enthusiasm displayed as the columns of the 26th Division passed in review in Boston upon their return from France. Those men returned, many of them in better physical condition than when they went away, having been protected from the ravages of the disease that formerly carried off more victims than the enemy's bullets. When we consider what modern medical science has done to protect mankind against such diseases as typhoid, malaria, yellow fever and others; when we realize that compulsory vaccination has practically wiped out smallpox in the Philippines, and that it is some years since this country has been obliged to close its ports to travel from the West Indies on account of epidemics of yellow fever, is it not disgusting to receive (as many of us very recently did) postal in the name of the so-called "Medical Protective League," asking us to write our Senator and Representatives immediately, demanding that they vote against the bill to compel vaccination in private schools? We prefer to get our instructions from more reliable sources. While hygiene and sanitation have a great influence on controlling contagious diseases, it is hard to explain why these two should select certain diseases and practically stamp them out and leave others as prevalent as ever.

Antitoxin was just coming into universal use in the treatment of diphtheria, and statistics showed a remarkable drop in the mortality rate. Opposition to the use of antitoxin developed in the profession as well as outside, and one of the arguments against its use was that it increased the number of cases of neuritis following the attack. By saving so many more lives it would naturally seem to produce more complications until such times as the profession was awake to the value of the early use of the remedy. Now we hear no more about an increase in the number of cases of diphtheritic neuritis. Pneumonia, on the other hand, is a disease where no marked effect is seen in the mortality rate because we have no specific for its prevention or its cure.

The x-ray has been developed and its present value as a means of diagnosis has all been

reached in the past twenty-five years. I remember the first x-ray picture that I ever saw. It was that of a hand with some rings on the fingers, and the surgeon who showed it related to us how he had seen a silver coin inside a box by looking through a fluoroscope. Little did we realize how great an advance or help this one means of diagnosis was to become.

So, too, with many other methods, some of which we knew about, but which had not then been applied to a practical or universal use, such as the blood pressure apparatus, the electrocardiograph, photography, blood counting and blood chemistry. Radium had not been discovered.

One other thing I want to mention, because I believe it has come to stay, though our views may admit of considerable modification, and that is the theory that foci of disease hidden or untreated may be the cause, or one of the causes, of the rheumatic pains and arthritic changes so commonly seen and productive of so much deformity. If by attention to these foci and the intelligent treatment of them we can prevent the onset or progress of these joint changes no one thing in medicine will bring more relief to sufferers than this. How far we may go, or just where we may be led, may not wholly be apparent now, and we may decide that a chronic cholecystitis, for instance, is just as much a source of danger as abscesses at the roots of the teeth; still, I believe there is more than a possibility of great benefit coming from this theory. Attention to the upper right quadrant of the abdomen has decidedly increased, and it looks as though some men regarded the gall-bladder as about as useful to us as the appendix, and to be gotten rid of if possible.

Along with the expansion in hospital work, and with the changing views concerning disease and its treatment, other things have happened that have had a good effect. With the broadening of our ideas of disease and with the development of means of treatment other than by the use of drugs, the differences between the two most prominent schools of medicine have faded away and, today, we see our brethren of the homeopathic faith sitting with us with no thought on either side but that of good fellowship.

During the past ten years the College of Surgeons and the Association of American Physicians have been organized, both being in a position to exert great influence in shaping public opinion in the future.

The standardization-of-hospitals movement has brought about a more careful interest in hospital work, and has led up to the follow-up system and in many places to the engaging of a social worker. In this way a beginning has been made toward knowing the results of hospital work which will be of inestimable value in the future.

These changes, this expansion, the broadening

of the field of medicine have brought about a condition that causes us to consider where we are headed. Medicine has reached a stage where not only does the practitioner feel his helplessness in trying to grasp the whole, but even in the two great sub-divisions—medicine and surgery—there have appeared men who are being known as having given special attention to one set of organs, so that now we hear of the stomach specialist, the heart specialist, the specialist on respiratory diseases, etc. In this way, while the whole field of medicine has broadened, the individual's endeavor has narrowed. So far as the public is concerned, this attitude has been accepted as reasonable and no doubt beneficial. I think, so far as the patient is concerned, the sum total has been for his benefit and will be more so in the future. There are, however, some dangers and losses that I shall mention later.

We recognize that the great majority of cases seen in practice are cases which present either no difficulty in diagnosis, or the patient's condition is such that the general practitioner can handle them successfully himself. Then there are other cases where the diagnosis is so clear that the doctor consulted knows where to send them if he himself feels incompetent to care for them. There remain, however, many cases where the diagnosis is doubtful or obscure; where the services of a number of men in special lines are needed to clear up doubts before successful treatment can be instituted. It is to meet the need in these cases that the idea of group practice has sprung up, but not only on this account, but because it is recognized that to send a patient to a number of specialists for a collective opinion would be so expensive that it would be prohibitive to all except the rich. The idea is not to supplant the general practitioner, but to act as a consulting or advisory board for him. But could any group of physicians band themselves together, establish a laboratory and furnish all the other apparatus necessary fully to equip themselves for such work and make it a success in a district such as we live in? I think not, for two reasons: first, because a return from such an investment would not be adequate to give a good living unless the fees charged were so high as to prevent people seeking their advice and, second, because there would not be material enough to give that return. Even if one such group were successful their success would be a stimulus to other men to form another group, and a divided field would not be satisfactory for many reasons. Today there are men who undertake to establish themselves as such consultants and are successful because they act as a sort of directing head, referring the patient to this or that specialist as the case requires. Probably most of these men have access to some established laboratory or have made arrangements with a laboratory to do this work for them. This is very different from the arrangement I have just described,

where a set of men associate themselves together and furnish all the equipment themselves and expect to make it pay. I doubt then that the group idea will be a success, especially outside the large centers, except in the connection with some established hospital where there will be access to an equipment already there. And in this part of the country where there are comparatively few open hospitals, the opportunity for such grouping will be confined to those men who hold staff appointments. There are individual men who have established private hospitals and who have, perhaps, associated with them younger men who carry on investigations, and while I do not know the arrangement of such a group as to salaries, etc., I think the success of such an enterprise depends most frequently on the surgical fee or special fees and not upon the diagnostic work done.

I believe the group idea is a good one and will bring forth much benefit for the patient, but I believe its field will be limited to a comparatively few. Today, when we meet a doubtful or obscure case, we say to the patient, "Why don't you go up to the hospital for a study of your case?" And the patient, feeling that he is to derive much benefit from this very careful study of his case, falls in with the idea. He goes and is examined from top to toe, inside and out, and in instances receives decided benefit thereby. Are we not relying on the established hospitals and their equipment in order that the fees may be within the reach of our patients?

As it is, does not this thorough investigation include x-ray work, laboratory work which furnishes examinations of urine, faeces, blood and blood chemistry, kidney function tests, and perhaps electrocardiograms, as well as the services of a surgeon, a clinician or a neurologist, before the patient is turned over to the proper man for treatment or returned to his family physician? The work done may be paid for, but nowhere near the amount that would pay a decent interest on the investment. A collective opinion has been given, which is just as valuable, but is seldom paid for. If a surgical case, and the patient can afford it, the surgeon may get a fee for his operation. Otherwise, the patient goes to the ward and the operation is often done by the same surgeon for nothing. How many hospitals are there that are so well equipped with all the apparatus needed for this work that they do not have to go outside for opinions or work, that are successful financially unless they are endowed or supported by a municipality? This is as it should be, for medical endeavor has been and always should be towards benefit to humanity and never to the sordid view of a money-making scheme. Too frequently, however, we are imposed upon by the public. The public has been educated up to the paying of large fees for surgical operations, but it has not been educated up to paying for a diagnosis,

which is often just as important and may even be more essential to a successful handling of a case. They should be taught. Some form of group practice I believe will come, but I doubt that it will be carried to an extreme successfully.

Among other developments in the past twenty-five years having a direct effect upon the practice of medicine is the work done by the State or municipality. Great advancement has been made by the State through its Board of Health in the production of sera for the treatment of disease, the manufacture and free dispensing of antitoxin for the treatment of diphtheria, the more careful preparation of vaccine that reduces to a minimum the possibility of contamination with foreign material, the establishment of laboratories for investigation—physiological and pathological—and for experimental research. The State has also been divided into districts with a health officer in each, whose business it is to look after the conditions under which men and women work. Nearly all the larger communities maintain laboratories where sputum, urine, faeces can be examined; where Wassermanns can be tested out, and where cultures can be examined and reported upon. Municipalities, also, under the direction of their Boards of Health, have established school inspection and have carried it so far that now, not only is search made for contagious disease, but the eyes, nose and throat are examined for defects, or any malformation or beginning trouble detected and the attention of the parents called to the condition.

The attitude of the public to all this has been too frequently that of suspicion or of looking upon it as meddling, but when the benefit of it all is seen, both from the pecuniary gain and from the betterment of health, much of this opposition has disappeared.

Large manufacturing establishments, upon investigation of the time lost by their employees through sickness or accident, have established hospitals of their own where first aid can be given or beginning sickness detected, thereby saving many hours of lost labor. The results obtained in these large plants have brought about the law requiring plants that employ 100 or more hands to provide some one trained in first aid to give aid to injured persons.

During this same period the Workman's Compensation Act has come into existence. Under this Act the manufacturer is enabled to throw the burden of the case of his injured on other shoulders and devote the time saved thereby to other matters, and the workman receives great benefit in the assurance that there will be something coming to him if he is injured, and that there is not the necessity of going to a court to get justice with the chance of getting nothing. There are many defects in this law and too often a great chance for unjust claims to get in for consideration, but on the whole I think the law has benefited both parties. What about

the doctor? I think the Act has made no great difference with the amount of work the average physician gets. I recall the preparation I made to meet the great stream of accident cases I expected to get on the first Fourth of July after I started to practice, all of which I did not get, and I learned that the vast majority of accidents go to hospitals anyway, and now I get out of town on that day if I can. Did the average physician, who before this Act was not in the employ of some establishment, see any more of accidents than he does now? If he did, I think the difference was slight. When the Act first came into effect many doctors took advantage of it to run up exorbitant bills against the insurance companies, and the companies retaliated by fixing things so that the work should not be paid for unless taken in charge by men of their own selection. This ruling has been changed so that now the injured man has the right of choice as to who is to take care of him. The insurance company is protected by the ruling of the Commission that it should be charged just what the man would be charged if he were to pay the bill. I believe the average physician is not affected much by this Act. On the other hand, I believe the surgeon connected with hospitals is the one who is unjustly called upon to give of his time and effort in the care of these cases without compensation, except as he may be in the employ of some large plant. Some boards of trustees of hospitals, having recognized this, allow the staffs of their hospitals to charge for their services, but the Industrial Accident Board has ruled against this. I believe this is absolutely wrong and that no insurance company should expect to get any work done for nothing.

In 1915 the Legislature of Massachusetts appointed a recess committee to study into a proposal to create old-age pensions and insurance against sickness. This committee held fourteen meetings in various parts of the State, and in 1917 presented its report to the Legislature. There was a difference of opinion amongst the individual members of the committee with regard to the exact framing of the law, the time when such a law should be enacted, and the manner of assessment to establish a fund to meet the expense, but the majority opinion was in favor of ultimately enacting such a law. Other States, notably, New York, Pennsylvania, Ohio and California, have had committees studying this same proposition, but up to this year, so far as I know, no State has adopted the plan. The difference between this plan and the Workman's Compensation Act is that it is proposed to raise the money to meet the expense by assessment on those entering into the plan or on the whole body politic. As to the cost of actually carrying on this work, it is argued that the burden would not be much greater than the community now has to stand. When we consider the number of organizations and societies now

in existence that are directly or indirectly concerned in the care of sick and unfortunate members of society, and the amount of money that is contributed by individuals or firms for the same purposes, perhaps we shall find that it is not a greater burden for the State to take it over and systematize it, but past experience in State management does not give us such a lot of confidence that this plan will do away with the need of the same societies, or the contributions from private sources. After having given this subject a somewhat superficial study, I am of the opinion that some sort of health insurance is liable to be thrust upon us in the future, but whether or not it will be a bad thing for the profession depends largely on the alertness with which we look after our own interests. My purpose is not to take up the pros and cons of this subject, but to consider it only in its effect on the progress of medicine.

One other matter: In the October number of the *Century* magazine, is an article entitled, "Trailing the Robin Hoods in Medicine." As I understand it, the historic Robin Hood was an outlaw and after reading the article one does not wholly grasp the reason for this title. The writer begins by calling attention to the fact that the trustees of Johns Hopkins Hospital have made a rule that the maximum fee charged for a surgical operation should be \$1000. He goes on to discuss the question whether surgeons are profiteers or not, and concludes they are not, that no class of professional men do their work more considerably or conscientiously. He claims that the important point is not the large fees charged rich people, but the general high cost of medical attention. He then suggests that the question of medical attention be discussed in terms of the nation and not in terms of the individual. He prophesies that some day we will zone the country for medical purposes, as it is now zoned for banking purposes. We will do away with private practice and create a health army of doctors adequately supplying each district with sufficient practitioners and specialists so that every inhabitant in the district can have all the attention needed. This health army will be salaried and therefore not in danger of treating one more carefully than another. He considers that the present system puts a premium on disease rather than health. The number and quality of men who serve, the length of time required for preparation, the physical equipment of laboratories would then be determined by the health needs and not on what an institution needs and can pay for. This system, he contends, would relieve the doctor of depending on sickness as a source of income and allow him to turn his attention to the prevention of disease. This system would result in the family sending for the doctor at the first indications of sickness, and enable him to give early attention and as often as he thought necessary with

out being accused of fee hunting, and would mean a larger average income for the profession with less expense to the community.

In the foregoing pages, I have tried to place before you some of the influences that have appeared in the last twenty-five years that are having a decided effect on the progress of medicine. I do not claim to have touched upon all, but have selected those that illustrate to my way of thinking the most important, and these immediately divide themselves into two distinct factors, i.e., those coming from within the profession and those from without. Taking the latter first, we are again able to make a subdivision into those coming from the State and those from the general public.

So far as the State is concerned I believe that where medical matters have been left to the appointed health boards and their work has been unhampered by political influences, there has been a continued progress. The successful building of the Panama Canal, or its completion without an appalling loss of life, depended on the application of the principle of the way in which malaria, yellow fever and typhoid were transmitted. This same principle has been applied successfully to the stamping out of typhus. Hygiene and sanitation were not enough to render Panama safe for work. It needed the study of the habits and habitat of the mosquito and protection against that insect. Neither were hygiene and sanitation enough to stamp out typhus. It needed sterilization also.

I have already mentioned the work of the State in furnishing sera, toxins and antitoxins as well as in establishing laboratories for physiological experimentation and pathological investigation. All these things are in the line of advancement and of immense value to the general practitioner and of great benefit to the patient.

Perhaps the greatest effort of the State health organization has been towards prevention of disease, and in its various departments this work is well done, but its results are, too often, not seen or understood by the public and criticism or open opposition, malicious or otherwise, frequently results. An illustration of this is the present attempt of the State Board of Health to introduce the Schick Test into the schools. Fear and prejudice towards such a thing is but natural and should be recognized and a wise attempt made to overcome it or it will fall prey to some one who has an axe to grind or one who is looking for cheap publicity.

When we come to consider the influence that the general public is having or will have upon the progress of medicine we look back over the past with no great degree of confidence that our aims and motives will be understood. It is not much over twenty-five years ago that anyone who wanted to practice medicine in Massachusetts could hang out his sign and that was all that was required. When a bill regulating the practice of medicine was presented to the Legis-

lature, one of the most prominent Harvard professors appeared against it on the ground that it was infringing on the personal liberty of the individual's right of choice of his physician. The fight between vaccinationists and anti-vaccinationists has existed for years and still exists; so also, with the anti-vivisectionists. Occasionally a new organization like this Medical Protective League is formed with a definite purpose of fighting some progressive medical idea that has undoubtedly passed the experimental stage. Then there are the "real good" people who see only that a measure seems to benefit mankind without giving a single thought of possible detriment to the very object they are desirous of attaining. But, after all, does not this opposition come from a very small minority of the whole, and does not the vast majority of people still have confidence in the medical profession, and are they not willing to be led and to see the value of a new step as soon as they are shown?

As evidence of this, note the gradual acceptance of the practice of inoculation against typhoid, furunculosis, asthma and other diseases, until, I often think, the public has more faith in some of these inoculation theories than the doctors themselves. Acceptance of our ideas or advice may have come slowly and may have produced active opposition, but as a rule we have not failed to gain the confidence of the public and its co-operation. This attitude should be met, as I believe it is being met, with a straight-forward, honest and entirely without subterfuge attitude on our part. More and more the public has been taken into our confidence and our aims laid squarely before them. So when we are confronted with a proposition like national or State health insurance, where our interests are affected we should look upon it from the broad view of citizens just as much as doctors. There seem to be varying views in England, where it has been tried, as to its effect upon the profession, which is the side of it that I am mainly concerned with now, but if I read correctly there is a strong feeling that the whole body politic is better off with law in effect. What I am concerned in at present is the question whether or not it will be a hindrance to progress in medicine. One thing is certain, that, if the public is satisfied that national health insurance is for their benefit, or even this fantastic scheme of zoning the country and making health officers of us all—I brought this scheme in just to show you that such things were being thought of)—if, I say, the public is satisfied that these schemes are for their benefit, they are not going to stop because we do not like them. It is for us to point out to them that anything that tends to lower the standard of efficiency of the doctor is not for their benefit. That is one side that does not always enter into the view of well-intentioned people.

Are there not many drawbacks to such schemes as these, when we look at them from that angle? Under the present system *is* there a premium placed on sickness? We all know how, as young physicians, struggling to get a start, we have put our best into the care of our patients, because we knew our success and reputation depended upon doing so. Would this be so under any of these schemes? On the other hand there would not be the same reason for a student to so thoroughly equip himself, if he had to feel that after he began practice he would be limited in his ambitions. Would there not be a temptation, as long as the community or State was paying the bill, to make as many visits as possible and run up as big a bill as possible? The patient, no doubt, would not care, for he would be paying just as much whether sick or not, but would he have the same respect for the physician as a man that he has now? If we were all health officers, would there not be a great chance for graft in accepting from the well-to-do extra fees for extra attention? I am not maligning the profession by pointing out that there might be men in it that would stoop to such practices, but I am trying to point out the temptations that would beset him. If we were salaried health officers and conscientiously felt it our duty to watch a case of pneumonia by making three or four visits a day, would we not be in hot water all the time trying to explain to some neurasthenic why so many visits on her were not necessary?

If there is a premium on sickness under our present system, would there not be a much greater one under any such scheme?

Would there be the same incentive for the individual doctor to keep abreast of the times, to constantly study and keep in touch with the best thought of his profession as there is now when his success depends so much on that one thing? It reminds me of the statement of one of our citizens, who had served as an alderman, in describing how a committee from that body went on an inspection tour of our sewerage system. Some of the committee did not get out of the automobiles until they landed at the State Mutual Building, where they were to have dinner!

Our friend of the "Robin Hood" article says that under the existing system of private practice, we have no assurance that every doctor will spend as much time as he should in preparation for practice and no assurance that he will keep constantly in touch with the latest results of research, etc. He also claims, in speaking of medical schools, that in the present system the number and quality of men who serve on medical faculties, and the physical equipment of laboratories, are to a greater or less extent determined by what the institution can pay for, and not by its needs. Do you think that any institution controlled by the Government, with all the chance there is for political intrigue, would select its teachers with any

greater interest for the institution's welfare than is done now? In what field has governmental control demonstrated that it has produced better conditions than exist under private management? Who is responsible for our present laws governing registration in medicine? Are they what we would make for ourselves if we had the whole say?

No law requiring a doctor to take time to study, to visit hospitals, and to take post-graduate courses, would be half so effective in stimulating him to do so, as for him to realize that it was for his own interest to do it.

In the past, the profession has set a standard for itself. It has never tried to restrict the freedom of choice to the individual in selecting a doctor, but it has insisted that, if a man desired to become a doctor, he should go through a preliminary training and not impose himself upon an unsuspecting public. In so far as this requirement fails to meet our ideal, the fault does not lie so much with the profession as with outside influences. In other words, we set a much higher standard than the public would require of us.

Courses in schools have been extended, a better preliminary education insisted upon, clinical teaching and hospital experience have been developed so that now medical schools outside the large cities, where there is an abundance of clinical material, are hard put to exist at all.

Through the efforts of men in the profession, and later through the influence of the College of Surgeons, there has been set up a standard for hospitals, and hospitals refusing to attain or to approach that standard are liable to be advertised for their true worth before the public.

Would there be any better progress if these things were controlled by regulations or laws? If national health insurance comes, it is up to us to help frame the law so that there will never be a breath of suspicion that we can take advantage of it to milk the public fund for all we can get out of it. Let us not make the mistake of viewing any such legislation as apparently some doctors in the beginning viewed the Workman's Compensation Act.

In the days past, the doctor was an individual set aside for a special duty. He was excused from jury duty, he kept by himself and assumed that it was beyond the understanding of the laity to attempt an explanation of medical matters. Today this is all changed and we must assume more than ever the work of taking the public into our confidence. We must become teachers and leaders and it is my conviction that such a course will result in a better understanding of our ideals, and we will not find it more difficult to influence public opinion than formerly. Any attempt to establish health insurance must be met by us in a broad-minded manner and not from a selfish view.

Lastly: what is the effect upon the individual doctor of all this modern medicine? Will ne

be as self-reliant and versatile as formerly? Is there not danger that he will become too dependent upon the apparatus side of it all, and less upon his own individual effort? I heard Dr. W. J. Mayo say once, in speaking of the modern methods of diagnosis, that after all they were only adjuncts to confirm what we could see, feel or hear. He said that a careful history, plus what we could feel with our hands, was of inestimable value because of its effect in keeping us alert. I believe no truer thing has been said. I heard one of our own number say once that we should always endeavor to diagnose a fracture and use the x-ray only as confirmatory evidence.

As I have said before, the student comes forth much better equipped than he was twenty-five years ago, but he has to acquire judgment and discrimination, and these qualities he will acquire by his own efforts better if he aims to do his work alone, learning to select those cases that require more than the ordinary investigation. He will be better appreciated by his patients, he will have shown a deeper interest in his work, and that quality of sympathy so essential to command the confidence and devotion of his patients will not be lost.

I remember, when a boy of twelve or fourteen, our old family physician died of diphtheria. Owing to the malady a public funeral could not be held. I remember the consternation and gloom that settled over the community when it was realized that the doctor was dead. I remember the service some time later in his memory, when the whole township, regardless of religious creed or station in life, assembled in the largest church in town to honor him. Later the people placed a monument over his grave in commemoration of his long years of devotion to them. Dr. Gage told me that his father regarded Dr. Warner of Leicester as one of the best men in this vicinity.

Not so long ago this same feeling was shown when the late Dr. Charles H. Perry died. We remember how his house would not begin to hold the crowds that wanted to attend his funeral. Neither of these two men would be regarded as particularly scientific, perhaps, but they filled a place where they lived, along with a number of others who have passed away, that would be hard to duplicate today. They were self-reliant and versatile. They strove to get into the lives of their patients in a way that scientific medicine never has or never will teach us to do.

Pardon me for citing a case in my own practice, and please do not think I am trying to build a halo around my head for anything I have done. The excuse for bringing this case in, is that it is no more than occurs in the practice of any one of us. I was called upon last July to attend a young girl. I do not intend to go into her case except to say that for three months it was a hard fight, and when a lung condition appeared on top of an abdominal one

I went home one night feeling like a "licked pup." That thin, pale face haunted me day and night. It used to eut deep into the heart to see the appealing look mingled with fear when I did her dressing because she thought she was to be hurt. During it all she never lost confidence and faith that she would get well, and she did. Today as I contrast that pale, thin, appealing face with the full, rosy-checked, almost mischievous one, and the figure that indicates that health has been restored again, I know that I was stimulated to do my best by the trust placed in me.

If scientific medicine ever brings about a condition where true human sympathy is lost, where the regard of the patient for the doctor gives way, or where the close relationship just as often established through working on a hopeless case as on a successful one is not present, then we as a profession will have lost one of the charms that make our work worth while. If what I have just said is regarded as sentimental, and therefore to be scouted at or disregarded, then I am sorry for the fellow who cannot or will not be sentimental. He is the loser.

You all remember the incident in Ian McLaren's story, "The Doctor," where the country practitioner had called a great London surgeon to save the life of one of his patients. The surgeon was met at the station and taken in the "one-horse shay" to the patient. The route necessitated their crossing a swollen stream that meant danger to them both. The great surgeon hesitated and then refused to cross. Do you recall the contempt shown by the less scientific man for the other, and the personality that compelled the great man to do his duty? After the operation was done the surgeon took off his hat to the other, gave him all the credit for saving the life, and said he was proud to do homage to the man who, in the face of danger, had compelled him to do his duty. The opportunity to make true men of ourselves is there, and we should never lose sight of it.

To recapitulate: We see two forces at work today affecting us, one from within, and one from without. These two can be at variance, but they do not need to be. Much depends on our own attitude.

We as a profession must come forward and assume the position of leaders and teachers. We must develop as a body that same confidence in our motives that the individual doctor now often holds in the hearts of his patients. If scientific medicine ever leads us to a point where the finer instincts of our lives are blunted, if we look upon our patients as machines to be taken to pieces and put together again as we will, if it ever leads us to a point where we are out of touch with the sympathy and devotion to ideals higher than science, then we will be the losers.

Preventive medicine has come to the front, and the old saying that we are a profession that

is constantly trying to put ourselves out of business may seem to be true, but it is not wholly true; for, with new fields of investigation opened up, new opportunities have come, and there is work for all. The field has not narrowed but broadened. Our work has changed and become more collective or interdependent, and much less individual. It is not necessary that this new view, this interdependence, should lower our standards or do away with the best of the traditions of an honorable profession. It is because I feel that there is a danger in it that I have written these pages. We can conduct ourselves as a body so that we shall still maintain that confidence from the public that the old practitioner enjoyed, and if we do this we shall have become better men and better citizens for the effort. In this new interdependence are we not liable to discover each other's mistakes more than ever, and does it not behoove us to be more charitable towards each other than ever, and never stoop to the position of trying to "get something" on somebody?

STATISTICS TAKEN FROM THE REPORTS OF FOUR HOSPITALS: MASSACHUSETTS GENERAL AND BOSTON CITY IN BOSTON, MEMORIAL AND WORCESTER CITY IN WORCESTER.

Note that where there has been a discovery of the mode of transmission, or a successful method of inoculation, there has been a marked decrease in the number of cases, with no great decrease in the death rate.

	1895.		
	Cases	Deaths	
Typhoid	461	68	15%
Malaria	105	1	
	1920		
	Cases	Deaths	
Typhoid	105	10	10%
Malaria	15	0	

In diphtheria, on the other hand, where there is no specific for prevention, the number of cases has not diminished, but the death rate has been greatly reduced, because we have an antitoxin for treatment.

	1895.		
	Cases in Worcester	Death rate	
	736	27.5%	
	1920.		
	Cases in Worcester	Death rate	
	908	6.25%	

In pneumonia, where we have no specific for prevention or cure, there has been no decrease in either the number of cases or in the death rate of any account.

	1895.		
	Cases	Deaths	
	459	162	35%
	1920.		
	Cases	Deaths	
	705	250	28%

In appendicitis the treatment has become entirely surgical, and the practice of early operation has resulted in a marked drop in the death rate.

	1895.	
Cases	Deaths	
414	30	8%
	1920	
Cases	Deaths	
1586	33	2%

These statistics have been collected rather hurriedly, and may not be correct, but they illustrate the facts presented.

BACKACHE.

BY WILLIAM DAMESHEK, BOSTON.

DR. OLIVER WENDELL HOLMES defined woman as "a constipated biped with a pain in the back." He must have been exaggerating, but the definition serves to bring to mind a symptom which, with constipation, easily holds first rank both in incidence and troublesomeness with the other ills of mankind.

Thanks mainly to the valuable educational articles written by the manufacturers of Doan's Kidney Pills ("Every Picture Tells A Story"), and by other equally public-spirited manufacturers, the laity has come to believe that pain in the back means "kidney trouble." This is by no means a laughable conclusion when one considers the names that the erudite and scientific medical profession has foisted on this symptom-group: neurasthenie, hysterical, irritable, railway spine; chronic lumbago, uterine backache, static backache; relaxation, subluxation of the sacro-iliac joint; sacro-iliac strain; rheumatism, arthritis of the spine; chronic back-strain, etc., *ad infinitum*.¹

All of this means that pain in the back may be due to anything from psychoneurosis to spinal caries. Every patient with an infectious disease, every case of childbirth, every tired medical student, weary from hours of sitting in hard lecture-room chairs and nights of study, has pain in the back. These are the most common causes of backache, but there are also the *kidney* group of cases; and the *pressure* group, referring to diseases which involve a progressive compression of the lumbar cord or its nerves; aneurysm, neoplasm, tuberculous spine; not to mention the pain referred from various other abdominal organs, and from the organs of the chest. In a differential diagnosis, to be complete, one would start with the skin (herpes zoster) and successively take up muscles, joints, bones, and organs.

The above causes are relatively easy of diagnosis, and are brought out by a carefully taken history and physical examination, com-

bined with laboratory findings. There is a great group of cases, however, which has thus far not been mentioned—namely, the undiagnosed chronic backaches which pass from clinic to clinic labelled in various fashions, treated in various other fashions, and cordially hated by students, internes, and visiting physicians because there are other and greater things to be done.

SYMPTOMS.

The general symptoms of this group can be brought out no better than by a typical or composite case, such as the following:

Case.—A Jewish housewife of 43 years, married, comes to the O. D. D. of the Peter Bent Brigham Hospital, complaining of backache, duration 8 years.

F. H. Negative.

M. H. Husband living and well, 9 pregnancies, 2 miscarriages; 7 children, all living and well.

P. H. Essentially negative.

P. I. For eight years, patient has been troubled with weakness, "nervousness," and general pains and aches, especially severe in the back.

Cardio-respiratory. Dyspnea on exertion, palpitation, no cough, no oedema of the ankles.

Gastro-intestinal. Appetite poor, tongue coated, bowels regular but must use pills daily to make them move. No nausea, vomiting, or distress.

Genito-Urinary. Urinates D 5-6/N 0-1. No dysuria or other urinary abnormalities.

Catamenia. Onset 13 years; regular; lasts 3 days; patient must stay in bed for two days with headache and malaise. No menstrual abnormalities noticed. Last period one week ago.

Neuro-muscular. Headache, frontal or occipital, associated with much work and worry. Worries a great deal, especially in regard to her husband, who is very nervous, who always grumbles, and who is never satisfied. Her husband is very passionate, but she tries to avoid his advances because she is so "weak."

Locally. She has had for eight years a dull, dragging pain in the small of her back, worse on standing or walking; occasionally the pain is sharp; there is no relief by any measures the patient may take.

P. E. Negative, except: Abdomen—greatly relaxed and pendulous; Pelvis—lacerated cervix; 2nd degree retroversion; somewhat relaxed pelvic floor. Local—slight limitation of forward and side bending, associated with some pain. There is tenderness on pressure over the lower lumbar region.

On analysis of this case, it will be seen that it has many aspects. Not only is there an *orthopedic* element,—the back symptoms,—but there is a *gynecological* element—the lacerated cervix, etc.; a *medical* element—the constipation; and a *psychiatric* element—the headaches, worries, etc. Were this patient to fall into the hands of a gynecologist, he would repair her

pelvic floor; an orthopedist would give her a corset; a medical man would tell her not to worry and treat her constipation; while a psychiatrist would treat her complexes and laugh at corsets. There is no use in dividing these cases arbitrarily into those due to pelvic manifestations, etc., since in most cases most of the elements will be found mixed.

THEORIES.

Merely for convenience, however, especially in picking out the various theories that have been advanced as explaining indefinite chronic backaches, we may divide them into these classes: Backache, due (1) to traumatism; (2) to arthritis of the spine; (3) to disturbances of pelvic organs; (4) to so-called "relaxation" or "subluxation" of the sacro-iliac joints; (5) to so-called "relaxation" or "subluxation" of the sacro-lumbar joints—spondylolisthesis; (6) to static causes; (7) to neurasthenia.

Backache due to traumatism and to arthritis of the spine can be dismissed briefly. These causes are more or less definite, cause chronic backache, and are treated in various well-known fashions. Arthritis is shown by x-ray, is frequent, but the symptom backache is usually out of all proportion to the amount of arthritis.

Few writers, notable among them Dr. R. C. Cabot,² doubt that disturbances of pelvic organs cause, in some way unknown to them, backache. An interesting explanation of the method by which pain is caused in these cases is given by Reynolds and Lovett³ who, in a joint gynecologic and orthopedic paper, conclude that tenderness of intra-abdominal or intrapelvic organs usually induces the patient to assume a stooping or other strained position in order to relieve the tenderness. This causes pain, by the mechanism later to be discussed.

The theory which has aroused most controversy, and which has been most productive of varied effects, is that of "relaxation" of the joints in the region of the small of the back. Relaxation of the sacro-iliac joints in association with pregnancy has long been discussed and, as early as 1870, was given as the cause of "distressing symptoms" in that period.⁴ This has been called "physiological,"⁷⁵ and has even been stated to be the cause of backache during menstruation, which has been likened to a "miniature pregnancy."⁷⁵ Not until 1905, however, was relaxation or subluxation of joints made to explain backache in general. Goldthwait and Osgood⁵ asserted that subluxation of the bones forming the sacro-iliac joints was the cause of many of the chronic backaches. They give as symptoms—guarded motions due to involuntary spasm; peculiar attitude on standing; limitation of motion, both forward and side; and abnormal mobility of the sacrum. The peculiar attitude of standing in these chronic cases, and the pain caused on motion, they attribute to the

abnormal position of the bones forming the sacro-iliac joints, causing thus an abnormal tilt of the spine on the pelvis, and pressure on the nearby nerves.

A host of writers thereupon took up Goldthwait's theory, which he further elaborated in 1907,⁶ so that the literature during the next decade is flooded with this newer pathology, and "subluxation," "relaxation," "slipping of the bones," have become almost by-words in certain medical circles.

It is noteworthy that none of these authors give x-ray evidence to support the pathology, although it is self-evident, as Lovett says,⁷ that a displacement of the joint severe enough to press on the nerve-trunks must surely be shown by x-ray. Some of the writers are quite frank in saying that the x-ray is negative in these cases although their diagnosis is relaxation.⁸ Furthermore, autopsy and dissecting-room records fail to bring to light such pathology.

Not alone were the sacro-iliac joints implicated, but it remained for Goldthwait in 1911,⁹ and again in 1913,¹⁰ to bring the sacro-lumbar joint into the limelight. Goldthwait stated that, due to relaxation of the lumbosacral ligaments, the fifth lumbar vertebra could easily slide forward upon the sacrum and be dislocated—spondylolisthesis. The dislocation could take place also to one side with the result that the whole spine would be rotated, the articular process of the fifth lumbar would be drawn into the spinal canal, causing irritation of the nerves inside or outside of the canal and producing thus leg pain called sciatica. It became quite the fad in the last decade to diagnose spondylolisthesis for chronic backache, and even now, in rare instances, the diagnosis is possible if x-ray shows the lesion.

My reason for laying so much stress on this subject is that the osteopaths and chiropractors have taken up the theory of subluxation and nerve pressure and have based all their scientific structure on this—to say the least—dubious pathology.

In 1910, Reynolds and Lovett,² after three and a half years of research, propounded the so-called static theory. They explain backache by saying it is due to a forward displacement of the center of gravity of the body. This results in an undue strain on the posterior muscles and ligaments, causing pain. *A priori*, the attitude or slouch bringing this about would occur in persons of diminished resistance, of peculiar figures—and it does. As an analogue of the process, we have the familiar pain caused by flat-foot. The sacro-iliac joints may also be involved in posterior strain, causing irritation, and thus pain in the sacro-iliac region. This may rightly be called sacro-iliac strain, but, according to Lovett, it is wrong to assume that this is an entity. All the symptoms referable to the sacro-iliac joints are explained by a *general* attitudinal strain.

Lovett's theory explains most cases, but I cannot see how it explains those chronic cases with definitely limited motions, peculiar attitudes of standing, etc. Here Goldthwait's theory would be useful, if it were acceptable. We will grant the fact that there is normally *some* motion—3mm.—at the sacro-iliac joints (Goldthwait). Is it not possible that wrong methods of standing and walking, repeated small injuries to the joint surfaces, produce a chronic synovitis of the sacro-iliac joints with resulting pain and limitation of motion, as in the synovitis of other joints? Is it not further possible that in the process of healing of this chronic synovitis, adhesions between the sacrum and ilia are formed, thus producing severe pain on motion, extreme limitation of motion, with peculiar attitudes of standing, and with no pathology demonstrable by x-ray? And again, is it not possible that the "snap," "crack," "slip," etc.—i.e., the sound which osteopaths produce on manipulation of most of their patients with chronic backache—is it not possible that this is due to breaking of the adhesions, and that the accompanying relief is due to the fact that the adhesions are broken, and normal motion is again possible?

Thus far I have refrained from mentioning, as a cause of backache, psychoneuroses. I believe that psychoneuroses can cause backache, but only in a roundabout fashion. Psychoneurotics usually have flabby minds, leading to flabby muscles and ligaments, to postural defects, and thus to strain and pain. There is probably always an organic cause, and there is probably always real pain; but, as with everything relating to himself, the psychoneurotic magnifies his pains and aches until they are out of all proportion to his pathology.

Finally, we should consider backache in its relation to other indefinite disorders, also difficult, also shunned by most medical men; namely, constipation and visceroptosis *et al.* There is no doubt that these two are sisters in evil with backache and that the one is inseparable from the others. This assumes importance in the treatment of any of the three—that is, measures must be directed at, not only one, but at all the others.

DIAGNOSIS.

The diagnosis of the type of backache I have been discussing is made partly on the history and partly by exclusion. X-rays should be taken in all cases to rule out hypertrophic arthritis. In women, a pelvic examination should always be made, but conclusions from this should not be too hasty. The individual's attitude, both of body and of mind, is a great factor in the consideration.

COMPLICATIONS.

The complications of backache are three: invalidism, osteopathy, and chiropractic. The so-called healing cults have sprung up as the results of the physician's inability to cope with

such a simple symptom, whereas syphilis and tuberculosis afforded much more opportunity of cure. After all, a patient worries about a *symptom* and wants it removed as speedily as possible; therefore, one cannot blame him for seeking the advice of a man who has helped his friends in numerous cases. In a recent article in the JOURNAL,¹¹ Dr. Macatee states that society has in many of its units found the medical profession wanting; the popularity of the cults represents the individual experiments of these units in their search of the good.

TREATMENT.

I suppose I will be accused of treading where even angels fear to tread when I talk of treatment of this difficult condition. However, is it not a possibility that the orthopedist treats his cases by corsets and forgets medical and psychiatric treatment; that the gynecologist puts the uterus back in place and neglects other measures; and that the psychiatrist treats the complexes and would not think of applying a brace for an "hysterical manifestation"?¹² A medical student is supposed to have an extensive knowledge of practically all of medicine,—a bird's-eye-view, in fact,—and perhaps this helps him to evaluate certain data, certain modes of treatment.

With these somewhat apologetic remarks, I will proceed to the treatment. First, a few general statements: The treatment must be absolutely detailed; it must, furthermore, be sympathetic—if the physician *knows* he is going to help the patient, half the battle is won.

As general treatment, plenty of fresh air, good food, and measures to correct constipation and visceroptosis should be considered. Constipation can be treated by various well-known methods, while visceroptosis is treated by exercise, proper methods of standing and walking, braces, etc.

If it is felt that there is a psychoneurotic element in the symptoms, the causes of the neurosis should be thoroughly gone into, and the underlying factors pointed out to the patient, with possible remedies. Merely telling a patient not to worry is probably a useless procedure, whereas explaining to an individual *why* he worries is often of help.

I will not enter into the question of when and when not to use gynecologic methods: firstly, because the subject is so unsettled, and secondly because my knowledge is so meagre. I will merely interpolate a warning given by Chalfant at the St. Louis meeting (1922) of the American Medical Association, which is relevant to the subject.¹²

"The idea that a 'displacement of the womb' is an exceedingly serious condition and may cause symptoms of any kind seems to be firmly established in the minds of people at large. Almost any woman who is not in good health from any cause can be persuaded to submit to opera-

tion when such a diagnosis is made. . . . Too often she is not relieved of her backache until she is fitted with proper support for her sacro-iliac joints; or of her headache, until fitted with glasses, or even of her constipation until her diet is corrected. *These things could be done before resorting to operation just as well as after it* [italics mine], and the patient saved the danger, suffering, and expense of a needless laparotomy. It would seem that at times the benefit derived from this operation is largely due to the enforced rest incident thereto."

As for local measures, a belt or brace has long been known to help. Italian laborers instinctively lower their belts to the level of their anterior superior spines to prevent back strain. Except in the very slight cases, however, mere belts or adhesive strapping are probably of no avail, because they must work through so much muscle and bone. Lovett⁷ advises a corset which is tightest around the bottom, and which furnishes both abdominal and sacral support. The corset should be straight in front and should support the hollow of the back. In addition to the corset, Lovett advises a course of rest in bed for the first few days, and, after the irritation has quieted down for some time, exercises and massage.

An interesting method of local treatment has recently been brought forward, namely, deep normal saline solution injection intra-muscularly, or sacral epidural injection of the same. A description of the latter procedure is given by Ayer in Cabot's "Case Histories."¹³ This method is so new that at present nothing conclusive can be said about it.

Osteopaths treat their cases differently and presumably with relief to many, according to the report of the Committee to Investigate Medical Cults,¹⁴ although the cause of the relief is not known. If my remarks to the effect of adhesions are true, the only rational treatment, then, for chronic cases, with severe pain and extreme limitation of motion, is *manipulation*, and by osteopathic methods. First, there should be a general loosening up of the muscles by swaying the body from side to side, then a quick thrust to the side, followed by a loud "click" or "snap"—the sound, presumably, of breaking adhesions. There is a knack to this manipulatory treatment which very few medical men possess, and if this is valuable, there is no reason why, in this instance, the medical man should not take a leaf out of the osteopath's notebook and treat accordingly.

It will be seen at once that a method of treatment which considers such matters as diet, underlying complexes, methods of standing and walking, manipulations, etc., is a very unwieldy, if not impossible one to handle in a busy out-patient clinic. If such is the case, is it not the fault of the out-patient clinic that such patients are not treated properly, rather than the fault of the treatment? If there are cardiac classes,

diabetic classes, etc., there could profitably be backache classes, where large groups could be simultaneously instructed in fundamental principles.

SUMMARY AND CONCLUSIONS.

In conclusion, I wish to emphasize several points:

1. Backache is probably the most common symptom presented for diagnosis and treatment.

2. The cause of chronic backache (aside from hypertrophic arthritis) is unknown, although it probably is postural in origin.

3. Subluxation or relaxation of the sacro-iliac joints is an explanation not supported by facts, and is probably of extremely rare occurrence.

4. The cause of chronic backache with limitation of motion, peculiar attitudes of standing, and severe pain may be due to a chronic synovitis with the formation of adhesions between the sacrum and ilia. Rational treatment is, therefore, the breaking of these adhesions.

5. Backache is almost invariably associated with other indefinite disorders, such as constipation, visceroptosis, and neurasthenia, and the treatment should include all of these.

6. Backache is slighted and improperly treated by the great majority of physicians and clinics, resulting (a) In great economic loss to the patient (1) who goes from doctor to doctor, (2) who is prevented from doing efficient work, (3) who may become a chronic invalid; (b) in loss of prestige of the physician; (c) in the popularity of the healing cults.

7. Most cases of chronic backache could be properly treated, with good chance of cure, if enough time and thought were given them.

8. The treatment should be detailed and sympathetic. It is (a) *General*—In which measures against constipation, visceroptosis, underlying complexes, wrong methods of standing or walking, gynecology, are considered; (b) *Local*—(1) For mild cases, a belt or adhesive strapping; (2) for more severe cases, a course of rest, and then a tight corset, as suggested by Dr. Lovett; (3) for severe cases, the breaking of adhesions by manipulation—the osteopathic method.

9. Backache could be advantageously treated in classes at the hospital.

I wish to express my gratitude to my instructors, Drs. Elliott C. Cutler and Hilbert F. Day, for their inspiration and aid.

Harvard Medical School.

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REPORT OF A CASE OF BILHARZIASIS FROM UNITED STATES MARINE HOSPITAL NO. 2, CHELSEA, MASSACHUSETTS.*

BY WENDELL P. CLARE, M.D., CHELSEA, MASS.

THE following report of a case of bilharziasis is submitted with the hope that it may prove of interest to other members of the profession, especially those who come in contact with patients from distant parts of the world.

So few cases of this disease have been reported within the United States, especially cases where-in infection has been caused by the *Schistosoma mansoni*, that it is thought a report of this case may prove of interest.

A.A.G., Summer Street, East Boston, Massachusetts. Born—Alexandria, Egypt. Age 23. **Chief Complaint:** Pain in chest on each side; dizziness, cough. **Family History:** Mother living and well, in Alexandria. Father dead, probably of meningitis. **Occupation:** Has been fireman and oiler on steamships since the age of 15. **Past History:** Born in Alexandria, Egypt, 23 years ago. At eleven years of age he left there and went to India, remaining about six months. From there patient went to London, England, and thence to Cardiff where he fired on a steamer between the latter point and the Mediterranean, during three years, following which he came to New York.

For the sake of brevity, the discussion of subjective symptoms has been condensed as much as is consistent with a proper outline of the case. A history of dizziness, infrequent epistaxis and frequent sore throat is volunteered. The patient has also experienced indefinite pain over the precordium, and dyspnoea for some little time previous to entrance here. A persistent, unproductive cough has been a constant symptom during the last year.

*Approved for publication by the Surgeon-General.

Gastro-intestinal symptoms have been confined to irregular constipation and several passages of blood with the stools, since 1917. Terminal hæmaturia has been noticed occasionally since 1916.

Present Illness: In 1920 patient had diarrhoea for four days, having from 17 to 24 movements daily. Stools were of a blackish color and much blood and mucus were present. In August of this year patient experienced pain in epigastrium, difficulty in breathing, weakness progressing, dizziness and fainting spells. Pain of an indefinite type was felt about the region of the heart. Indefinite pains throughout the lungs. Cough and hot feeling in throat. All above symptoms becoming worse, patient sought treatment at this hospital. On entrance to the hospital the patient's temperature was 98.5, pulse 80, and respiration 22. Patient well developed and fairly well nourished, rational, and able to be about.

In the interest of brevity, only positive findings are recorded in the physical examination following: It was noticed that the supra- and infra-clavicular fossae were very prominent, and that each apex lagged perceptibly upon inspiration. Expiration was slightly prolonged over each apex, and the breath sounds were roughened. The heart sounds were of good quality, but the second sound was markedly accentuated over the tricuspid area. Slight tenderness was elicited by deep palpation over the gall-bladder region and spleen. All reflexes were present and normal.

LABORATORY FINDINGS.

Urine: Light orange, 1026 acid, odor normal. Negative for blood, sugar, albumen and bile. Repeated examinations disclosed no ova.

Sputum: Repeated examinations have been negative for tubercle bacilli or ova.

Blood: Wassermann negative. Red blood corpuscles, 5,640,000; White Blood corpuscles, 7,000; Hemoglobin, 100%. **Differential:** Polymorphonuclear neutrophils, 47%; small mononuclears, 22%; large mononuclears, 13%; transitionals, 2%; eosinophiles, 13%; basophiles, 1%. Stain—Wright's. Cells counted—200.

Examination of Feces: Color, greenish gray; consistence, soft; reaction, alkaline; mucus, considerable; blood, slight. Parasites—ova of *Schistosoma mansoni*.

It is only fair to state that in this case pulmonary tuberculosis was thought of, and not without cause, considering the history and physical findings. Repeated examinations of sputum failed to disclose any tubercle bacilli.

The examination of the blood and the finding of an eosinophilia of 13% was the first clue as to the real nature of the disease.

In talking with the patient it was learned that he was born in Alexandria, Egypt, and up to the age of eleven, had always lived there. Bathing was done in the River Nile, and drinking water procured from the same source. Here, then, we

had the possible source of infection with some parasite, as it is well known the waters of the Nile shelter many diversified types. A stool was procured, the study of which in the laboratory disclosed the presence of the lateral spined eggs of *Schistosoma mansoni*. This gave the diagnosis which is consistent with the history, nationality, subjective and objective symptoms of the patient.

A proctoscopic examination was done and no ulceration nor polypi of the bowel were disclosed by this, and, excepting for slight increased redness just inside the anal margin, the result was negative.

A small amount of feces, of a golden yellow color, admixed with much mucus, was obtained, which, upon microscopic examination, revealed in several instances as many as five ova of the *Schistosoma mansoni* per field. An unsuccessful attempt was made to hatch out some of the ciliated embryos from the eggs in this specimen.

TREATMENT.

It was decided to try emetine hydrochloride in the treatment of this case, as a successful treatment of a similar case with this drug had but recently been reported by Bonnet of Paris. Treatment was instituted on September 20, 1921, with an initial subcutaneous administration of 22 milligrams of the drug in 5 c.c. of sterile distilled water. September 23, 1921, second dose of 33 mgm. was given; September 26, 1921, third dose of 44 mgm. was given; September 28, 1921, fourth dose of 55 mgm. was given.

Owing to the painful swelling caused by these subcutaneous administrations, it was thought best to discontinue this method of employment of the drug. Hence, on September 30, 1921, the fifth dose of 66 mgm. was given intravenously in 10 c.c. of sterile distilled water. Dizziness, coming on almost immediately and lasting about twenty minutes, was the only subjective complaint. Pulse and respiration showed no change.

October 3, 1921, the sixth dose of 77 mgm. in 10 c.c. of sterile distilled water was given intravenously.

October 5, 1921, the seventh dose of 88 mgm. was given as above.

October 6, 1921, the stool was examined, and the ova above mentioned were very numerous and easy to find. The stool was of a slate color, and ordinarily soft consistence.

October 7, 1921, the eighth dose of 100 mgm. in 15 c.c. of sterile distilled water was given. On this date, for the first time, the patient stated that he felt better, and that his appetite was improving.

October 10, 1921, the ninth dose of 100 mgm. in 15 c.c. of sterile distilled water was given.

October 12, 1921, the tenth dose of 100 mgm. as above.

October 13, 1921, the patient developed an irritative, unproductive cough, which was, however, amenable to the ordinary treatment.

October 14, 1921, the eleventh dose of 100 mgm. as above. On this date a stool examined showed the ova more difficult to find, and as many as ten cover slip preparations were examined to find one ovum.

October 18, 1921, the twelfth dose of 100 mgm. as above.

October 20, 1921, the thirteenth dose of 100 mgm. as above.

October 21, 1921, a stool was examined, and no ova found in twenty preparations.

October 22, 1921, the fourteenth dose of 100 mgm. as above. On this date it was decided to stop treatment and study the stools daily for any further appearance of ova.

On October 24, 26, and 27, 1921, stools were examined, after magnesium sulphate had been given, in each of which no ova were found.

On the afternoon of October 27, 1921, the blood picture showed: Red corpuscles, 5,490,000; white corpuscles, 26,400; hemoglobin, 96%; *Differential Count*: Polymorphonuclear neutrophils, 36%; small mononuclear leucocytes, 18%; large mononuclear leucocytes, 2%; transitionals, 3%; eosinophiles, 40%; basophiles, 1%. Number cells counted—300. Stain—Wright's.

Attention is readily called to the marked eosinophilia. The patient exhibited his old-time languidness, and his appetite became capricious. His temperature, which had hitherto been practically normal, rose to 38.2 C. and his pulse to 100. A slight friction rub was discovered in the mid-axillary line about opposite the fifth interspace. The left side of the chest having been immobilized by adhesive strapping, the patient was confined to bed, and the condition cleared up in four days.

Stools on October 28 and 29, 1921, were examined for ova without result, but the blood picture on the 29th proved very interesting: Red corpuscles, 5,510,000; white corpuscles, 27,800. *Differential Count*: Polymorphonuclear neutrophils, 21%; small mononuclear leucocytes, 18%; large mononuclear leucocytes, 0; transitionals, 0; eosinophiles, 61%. Stain—Wright's. Cells counted—300. Hemoglobin—98%.

The red cells were of good color, shape, and size. The urine examination on this date was negative. The blood picture of the 31st was essentially the same. The sputum has been continually examined for tubercle bacilli, fungi, and ova of flukes, with negative results.

October 31, 1921, a roentgenogram of the thorax was taken. The report is as follows: Marked thickening about the hila. No definite pathology of lung fields.

November 1, 1921, a stool examined showed numerous ova again appearing, so the emetine treatment was at once renewed, and November 2, 1921, the fifteenth dose of 100 mgm. in 15 c.c. of sterile distilled water was given.

November 4, 1921, the sixteenth dose of 100 mgm. was given as above. The blood picture

on this date showed a remarkable change from that of October 29, 1921: White corpuscles, 18,800. *Differential Count*: Polymorphonuclear neutrophiles, 48%; small mononuclear leucocytes, 20%; large mononuclear leucocytes, 3%; eosinophiles, 29%. Cells counted—300. Stain—Wright's. A great reduction in the percentage of eosinophiles.

November 7, 1921, a stool examined after a purge of magnesium sulphate had been given, showed but one ovum in thirty preparations, and this ovum was misshapen and somewhat broken up.

November 8, 1921, the seventeenth dose of 100 mgm. in 15 c.c. of sterile distilled water was given. A stool examined on this date for ova yielded negative results.

November 9, 1921, another stool was negative for ova.

November 10, 1921, the eighteenth dose of 100 mgm. was given as above.

November 14, 1921, the nineteenth, and November 16, the twentieth dose of 100 mgm. was given.

It will be seen from the foregoing that the patient received during the course of treatment 16.85 g.m. of the drug.

November 25, 1921, the blood picture showed the following: Red corpuscles, 5,320,000; white corpuscles, 9,800; hemoglobin, 89%. *Differential Count*: Polymorphonuclear neutrophiles, 50%; small mononuclear leucocytes, 29%; large mononuclear, leucocytes, 1%; transitionals, 1%; eosinophiles, 18%; basophiles, 1%. Cells counted—300. Stain—Wright's.

The blood had not yet fully cleared up, but such remarkable changes had taken place in it since October 29 and November 4, 1921, that we were led to believe it would become normal.

From November 8 to November 28, 1921, fourteen stools have been examined for ova. Half of this number were natural movements and half followed magnesium sulphate, as it was hoped that in such manner a more fair and true estimate of the condition could be appreciated. At least twenty preparations were made from different parts of each stool, but in no case were the ova of *Schistosoma mansoni* found.

The patient has steadily gained in weight and appearance. He has lost his languidness and is now wide awake and bright. His appetite has returned. His hoarseness has in a large part disappeared. The pain in the region of the gall-bladder and spleen, previously elicited by deep palpation, is no longer present. The signs noted in the chest during physical examination are no longer found.

During the month of December the patient remained under observation. His stools, sputa and urine were frequently studied, with negative results. The blood picture became normal, and upon January 1, 1922, he was discharged from the hospital feeling well in every way.

RECENT PROGRESS IN PHYSIOLOGY.

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THE CHANGE OF EMPHASIS.

DURING the past few years one can note a very distinct change in the subjects and methods of physiological research. The science has become more concerned with interpretation than with description. Fewer investigators are engaged in the study of complex coördinated systems, and more are seeking to discover the factors which affect the reactions of isolated cells or elementary tissues. It is as though we passed from observation of an automobile in working trim to an intensive collection of data regarding metals, oil, and gasoline. The new Physiology is less picturesque and more difficult than the old, but it appears to take us nearer to the fundamental properties of living matter. This shift in interest has made it necessary for those undertaking work in our laboratories to come with an equipment different from that which would formerly have sufficed. Detailed anatomical knowledge is rather less serviceable than it was to the masters of the classic period. General Physics and Chemistry now fail to provide the foundation and require to be supplemented by Physical Chemistry and Theoretical Electricity. Mathematics can no longer be shunned by the candidate. In short, the physiologist of the future will be less the naturalist making direct observations upon animals, and more the exact scientist dealing with tabulations and curves.

One feature of this change has been the obvious increase in the importance of Electro-physiology. Not many years ago this seemed a bizarre specialty remote from practical applications. Now it is seen that it promises to throw light on the most intimate mechanisms of stimulation and response. It must be remembered that changes of electrical potential are the only signs of life certainly to be recognized in nerves when disconnected from other tissues. The study of these rapid fluctuations by the ingenious methods now available is steadily making more clear the community of properties underlying the superficial diversity of cellular activities. It is by such technique that Forbes and Miller¹ have recently shown that ether cuts off the ascending nerve-impulses in the medulla. Crile had questioned the efficacy of ether to interrupt the afferent currents, and the latest contribution to the discussion is of the greatest practical interest.

PHYSIOLOGICAL REVIEWS.

It may not be superfluous to call attention to this new publication. The literature has become so voluminous that concise summaries covering special subjects are a necessity. *Physiological*

Reviews is a quarterly prepared for this purpose under the auspices of the American Physiological Society. It is now in its second year. Each volume is to contain about twenty articles written by men at home in their respective fields. Research workers will profit by the extensive bibliography, while a larger number of readers should be interested by the actual content of the reports.

The purpose of the present article is to indicate a few lines of work in which notable progress is being made. There are certain matters of such evident concern to the medical profession that they are not likely to be overlooked. It will be enough to mention two of these: the multiplied studies of the factors in rickets, and the endeavors of investigators at the University of Toronto to obtain in stable form the internal secretion of the pancreas, which is the regulator of carbohydrate metabolism. In these there is high promise of the therapeutic control of diabetes. Without dwelling upon matters so directly related to practice, we will turn to others less likely to be followed in detail by the busy physician.

"ALL OR NONE."

The "All or None Principle" continues to modify our traditional conceptions. Some ten years ago it won its way into our mode of picturing the contractions of skeletal muscle. We then ceased to think of the muscle-fibre as responding in different degrees to graded stimuli. The evidence marshalled by Lucas of Cambridge, England, compelled us to conceive of a slight muscle contraction as the maximal effort of a minority of the fibres, the majority remaining at rest. A little later Adrian showed that a nerve-impulse has the "All or None" character; it cannot reflect the intensity of the stimulus which gave rise to it.

The adjustment of our ideas to the doctrine of Lucas and Adrian has not been an easy matter, but it is gradually proceeding. Any who care to survey the problem may well read a recent paper by Forbes.² A few of the points made by him may be mentioned. If we accept the view that each muscle-fibre responds to stimulation in an "All or Nothing" fashion, and that the same principle holds for each fibre in a motor nerve, we must next ask how it is with the sensory apparatus. Have afferent fibres properties essentially different from those of efferent fibres? If they have not, what are we to think about the relation between stimulation and response on the sensory side? How shall we account for the seemingly smooth gradation of our sensations, and of measurable reflex actions?

Forbes tells us that the evidence will not permit us to think that sensory and motor fibres differ in any important respect. Assuming them to be much alike, we may still admit the following possibilities as we seek to explain how

increasing stimulation of receptive endings brings about increasing responses. First, stronger stimuli take effect on more numerous nerve-fibres. Second, very strong stimuli, though solitary, are capable of developing repeated nerve-impulses. Third, certain rhythms of stimulation favor the penetration of the gray matter by the resulting series of impulses; other rhythms are definitely unfavorable. It would not be profitable to follow the application of these guiding principles to the intricate mechanisms of the central nervous system. It is certain, however, that they will be employed in future analyses.

HIGH LEVEL NUTRITION.

Attention may be called to a protracted study in human nutrition reported by Gulick.³ It deals with over-feeding, and is thus complementary to previous investigations of the results of under-feeding, such as the elaborate one described in Publication 280 of the Carnegie Institution. Gulick made himself the subject of his experiments. By arbitrarily increasing the quantity of his food (without resorting to any artifices to make it more tempting) he carried his daily intake from about 2700 to about 4100 calories. In the course of many months he increased his weight by 10 kilograms, and attained to an equilibrium upon the new diet. Thus he added something like 50 per cent. to his ration, and operated his body with approximately 20 per cent. increase of mass.

These observations are on the whole consistent with the Carnegie findings. Benedict and his colleagues have shown that a man who sacrifices 12 per cent. of his original body-weight may do without some 40 per cent. of his former supply of calories. That is to say, he may maintain the new equilibrium, and still carry out the chief activities of his former program. Doubtless he conserves his muscular expenditures where he can. Summarizing the two studies, we may state that changes in weight are much smaller than changes in energy supply, whether one expands or contracts an allowance that has been habitual. One divergence between the results should be pointed out. Under-nutrition decisively cuts down the basal metabolism; during Gulick's period of excessive intake, this significant quantity remained practically unchanged.

THE PULMONARY EPITHELIUM.

As a rule, the accumulation of new data must be expected to add to the complexity of our conceptions. But now and then a welcome exception is noted: we find our interpretations simplified. Such an instance may be cited in connection with the physiology of respiration. Ten years ago the belief was strongly maintained by Haldane that the pulmonary epithelium can actively promote the movement of oxygen from the alveolar air to the blood. It was

taught that this secretory power came to be exercised at high altitudes and, in large measure, determined the success of acclimatization. An analogy was found in the well-known ability of the swim-bladder of the fish to secrete oxygen, albeit in an opposite way—from the blood to the lumen of the organ.

It has been difficult to credit the delicate endothelial cells of the lung with such a capacity, and it now appears that we are not obliged to make the assumption. Haldane had claimed that the tension of oxygen in the arterial blood of acclimatized subjects living at high altitudes might distinctly exceed the pressure of oxygen in the alveolar air. Such a state of affairs could hardly be explained without invoking a secretory process—an energetic transfer of oxygen to the blood. Careful experiments made last winter in the Peruvian highlands by British and American physiologists have failed to support the secretion hypothesis. Working at 14,000 feet, and using as subjects not only the members of their own group, but also the permanent residents, they found that the oxygen tension in the arterial blood was invariably below that in the alveolar air. Physical diffusion would therefore account for the passage of the gas into the blood.

If we are not permitted to include secretion of oxygen among the processes by means of which the organism maintains itself at high altitudes, we may still recognize the following factors as contributing to the adaptation. The number of corpuscles and the quantity of haemoglobin for a given volume of blood are both increased. The respiratory centre exhibits a modified activity, and by increasing the ventilation of the lungs, keeps the alveolar oxygen pressure nearer to the atmospheric than is the case at sea-level. Doubtless the vasomotor system gives efficient direction to the circulation. Surface relations between the air and the blood appear to be improved, and the permeability of the epithelium is probably increased.⁴

ALVAREZ ON THE ALIMENTARY CANAL.

An interesting monograph of the past year is the book by Alvarez.⁵ In it we have presented a body of evidence largely from original studies, emphasizing the autonomous capacities of the digestive tract. It is impossible in a brief abstract to do justice to the argument. The fundamental thesis is that the canal is normally characterized by a "metabolic gradient"—that the spontaneous rhythm of the musculature is progressively slowed as the successive segments are passed. In other words, we have here a condition comparable to that which we recognize in the heart. The auricle normally unloads to the ventricle, and acts as "pace-maker." We explain this by saying that the auricle has a superior rhythmicity; after it has executed a contraction it recovers, and is ready to repeat more promptly than is the case with the ventricle. In the same terms Alvarez would explain the

polarity of the intestine, and the usual advance of the peristaltic waves in a fixed direction.

He holds that reversal of peristalsis is a much more frequent occurrence than has commonly been assumed. It would be expected to set in if the irritability of any intestinal segment should be so intensified as to exceed that of the region next above. Such a change may conceivably result from inflammation. The contention is supported at length, and seems likely to modify long-accepted views. For several years Alvarez has maintained that the sensory symptoms of intestinal disorders are largely the result of mechanical conditions, and not of toxæmias. At this point he is supported by the recent work of Donaldson and his associates.⁶ These investigators, after personal trials involving no little discomfort, conclude that the ill feeling attending constipation is chiefly due to the mass of material distending the intestine, and to reflex disturbances therefrom, rather than to poisonous decomposition products.

DIFFERENTIATION OF MUSCLE.

One of the most revolutionary doctrines now before us is that which is advocated by Carey.⁷ He advances the opinion that the three contrasted types of contractile tissue found in the mammalian body owe their peculiarities to the use to which they have been subjected, rather than to any original characteristics. This is a dynamic theory of development. It suggests that smooth muscle, if persistently acted upon by a force alternately stretching it, and permitting it to contract, should acquire the nature and appearance of cardiac tissue. To test this possibility, Carey has patiently applied a distending pressure to the bladder of a young dog, injecting an antiseptic solution to fill the cavity of the organ, and then allowing it to empty itself. He reports that after a long course of these exercises the muscle cells from the bladder-wall have the microscopic aspect of cardiac elements. Such a finding, if confirmed, will be of the highest importance. It is certain to be rigorously examined.

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TUBERCULOSIS OF ANKLE JOINT AND TARSUS.

BY HENRY J. FITZSIMMONS, M.D., BOSTON.

[From the Orthopedic Clinic of the Children's Hospital, Boston, Mass.]

IN the December 17, 1910, number of the *American Medical Association Journal*, Dr. James Warren Sever published an analytical study of the cases of tuberculosis of the ankle

joint and bones of the foot which were on record at the Boston Children's Hospital from 1868 to 1910. In his conclusions he states: "The expectant or conservative method of treatment is preferable to the operative one. Time is saved and deformity less under the conservative plan than by the operative method. There is also less danger of secondary joint involvement and general tuberculosis by pursuing the non-operative plan." Ten years frequently brings forth many changes in the treatment of any surgical condition. In order to check up the results of the treatment of tuberculous lesions in the ankle joint and tarsus at the Children's Hospital, the records were collected of all such cases for the last ten years. There have been treated at the Hospital during that time:

	Spine.	Hip.	Knee.	Ankle.	Elbow.	Total.
Wards	635	462	114	44	6	
O. P. D.	301	273	92	52	9	
	936	735	206	96	15	1,988

From 1868 to 1910 the clinic treated 7474 cases of bone and joint tuberculosis. Of these 7474 cases 213 were of the ankle joint and bones of the foot. In the last ten years there have been treated 1988 cases of bone tuberculosis; 88 of these being involvement of the ankle joint and bones of the foot. From such comparisons, we have become impressed with the fact that tuberculous lesions in bones and joints are not as frequent as they were ten years ago. For example, there have appeared for treatment 88 cases of tuberculosis of the ankle joint and tarsus as against 213 such cases treated in the previous ten years.

Notwithstanding the evidence submitted by Doctor Sever in favor of the conservative type of treatment, the writer has been surprised at the number of cases operated upon before and following admission to the hospital.

To correlate results from the different types of procedure, we have for the last two years, gradually gathered all the tuberculous ankle joints and tuberculous lesions of the tarsus for the purpose of comparison and study, and grouped them into two large classes. In one class have been placed all cases that have received surgical interference. Operations in this group have included all grades, from the simple so-called medical incisions to excisions of one or more bones. In the second class have been placed all cases that have received no surgical interference; and in this group those cases that had abscess formation with spontaneous rupture of the contents without surgical assistance have been included.

There were examined 88 cases; of which 43 were boys and 45 girls. The traumatic factor in relation to the sex of the patient was found to be of very little value in a child under twelve years of age. Under twelve years of age, the activity of boys and of girls is about the same and the opportunity for trauma is therefore practically the same. In this series, the right ankle was

affected 45 times and the left ankle 43 times. In the histories it was noted that the patients had been exposed to tuberculosis by one or more of the members of the family in only 31½ of the cases. The history of trauma was considered of no value and therefore not included in this report.

Patients sought medical aid usually after a definite lapse of time from their first symptom. The duration of the time from their first symptom before medical aid was sought varied from 3 to 12 months; the average being 7½ months. In this regard it is instructive to note that the older the child, the greater the duration between the first symptom and the request for medical aid. This may be partially explained by the greater ability of the bone to support the structures involved.

The diagnosis of tuberculosis of the ankle joint and tarsus in these cases was based upon the following facts: (a) the presence of bone or joint involvement of a chronic nature without a picture of an acute infectious origin or trauma and persistent protection of the joints involved; (b) x-ray appearances which were early suggestive, but not definitely diagnostic; (c) the presence of a positive Von Pirquet reaction; (d) a frequent negative Wassermann reaction; (e) frequent bacteriological and pathological reports of material removed at the time of operation.

The writer appreciates that the weakness of such a paper as this is that only from the operative cases may we obtain material upon which to make a positively scientific diagnosis. However, one must grant to experience and careful clinical observation the right to make acceptable diagnoses.

The tables show briefly and clearly the end results after an elapse of time of the cases treated by operated interference and those cases treated by non-operative procedure. There were 43 cases treated conservatively by plaster fixation, Thomas ring splint, high sole, and crutches. In this survey there were found 45 cases that had been subjected to some type of operation.

Of the cases treated without operation; 12 did not have sufficient data and 6 were still under treatment so must be excluded from any summary of results.

The remaining cases presented the following results:

There were 10 cases under treatment between 10 and 18 months. In this group 1 case developed tuberculosis of the elbow and one developed tuberculosis of the knee. All presented absence of marked deformity or marked restriction of motion. There were 3 cases under treatment for two years; 1 showed slight deformity, and 2 showed no marked deformity nor restriction of motion.

There were 4 cases under treatment for three years; 1 showed slight deformity and slight restriction of motion; 2 showed no deformity of marked degree, but showed restriction of motion;

spine; 1 case of general tuberculosis; and 1 case of tuberculous meningitis.

From a comparison of this data, we feel that the operative treatment of tuberculosis of the ankle joint and tarsus in children is usually harmful. Time is not saved, deformity is not decreased, and motion is not preserved. When the infection is sharply localized so that a direct surgical procedure be followed, it might be of distinct advantage to resort to careful excision. Unfortunately, at present this is not possible, and, therefore, most surgery is to be avoided. Insection of the soft parts in the direction of the supposedly affected bone or joint has not been of any benefit. The abscess which presents itself and which spontaneously ruptures generally protects the surrounding tissues from invasion and from overwhelming infection. The cases in the operative group that were followed by the quickest healing and usually by the best surgical results were those that had been submitted to small incisions of the fluctuating mass of an abscess about to spontaneously rupture.

We are constantly hearing and frequently not heeding the teaching of the basic principle of the "equation of the foot." This "equation of the foot" in a growing child is constantly changing and is always disturbed in such operations as have been observed in establishing drainage or removing sequestra.

Tuberculosis of the ankle joint and tarsus in children should be treated conservatively. Local rest by fixation, protecting against the strain and mechanical pressures which the individual bones or points are subjected to, should be rigidly enforced.

Heliotherapy definitely aids before as well as in the presence of sinuses. Operative interference should be resorted to only after careful consideration and then the plan of procedure should be definitely understood. There is a greater danger of secondary involvement and general tuberculosis following operations than without. A large proportion of cases of tuberculosis of the ankle joint and tarsus get good functional results with very little deformity, but are more likely to get these results in a shorter time by the non-operative procedure.

ACCOMMODATION TO THE ANOXEMIA OF HIGH ALTITUDES.*

BY ALFRED C. REDFIELD, PH.D., BOSTON.

IN the anoxemia which results from residence in the rarefied air of high altitudes one sees phenomena which accompany cardiac and pulmonary disease, stripped of the complicating features which are due to the primary pathological condition. These phenomena have been the object of study of an expedition led by Mr. Joseph Barcroft of Cambridge University, which

has recently returned from the Andes of Peru. There, eight investigators, of which the author was one, enjoyed rather unusual facilities, having at their disposal a laboratory car on the Central Railroad of Peru. This railway climbs from sea level to an altitude of 15,665 feet in a distance of 171 kilometers, then descends to Oroya at 12,180 feet, to connect with a branch line to Cerro de Pasco, which, at an altitude of 14,200 feet, supports a native population of some ten thousand. As the result of this facility, and the coöperation of the officials of the Cerro de Pasco mines, a series of observations was made upon the physiological changes which accompany the recovery from mountain sickness, such as hitherto have never been obtained.

In the Andes the disability, mountain sickness, which most men suffer on coming into the rarefied air, is termed *seroche*. So definite is its symptomatology, so general is its occurrence in these not unpopulous regions, that it deserves some attention as a clinical entity. Its severity is sufficient to give it, in connection with the mining industry, a certain economic importance. While a few men were met who had never felt it, and many who had suffered but mildly, a very large number are so greatly affected as to be completely incapacitated for several days. In at least one authentic instance the *seroche* of a normal, healthy person has been terminated by death. Each case is an individual story and, up to the present, no one has been able to predict who will and who will not be affected. A description of cases of two degrees of severity will serve to picture the chief features of the disorder.

Making the ascent by train, one lightly touched by *seroche* experiences his first symptoms at an altitude of 10,000 feet or more. Lassitude, headache, usually frontal, and growing in severity, and perhaps nausea are felt. One feels cold, particularly in the extremities; the pulse quickens, respiration becomes deeper and more frequent; the face is pallid, lips and nails are cyanotic. On descending from the summit to Oroya, at 12,000 feet, though a marked improvement is felt, one finds himself reduced to a helpless condition of weakness which renders the least muscular effort irksome and productive of shortness of breath, dizziness, and palpitation. The night's sleep is restless, and on waking one feels much as he does on venturing onto his feet after recovering from an acute infection. In two or three days strength returns, the color improves somewhat and all but the more severe forms of exertion may be undertaken without distress. The majority are less fortunate than this. During the ascent the symptoms are qualitatively the same, but frequently more severe, and nausea gives way to vomiting. The night's sleep fails to bring relief; severe headache, gastrointestinal instability, and weakness continue for several days; the body temperature may be supranormal (102° F. by rectum), and at times one is aware of palpitation. Cyanosis

*Read before the Research Club, Harvard Medical School, March 10, 1922.

is marked. After three or four days in bed, relief comes and in a week normal activity may be resumed, though for many days breathlessness follows any unusual exertion and the cyanosis, though diminished, persists.

It is scarcely to be questioned that insufficient oxygenation of the blood is, primarily, responsible for *scroche*. The physiological basis of the production of its various symptoms raises many interesting questions which cannot be considered here. Rather let us consider how it is that the body compensates for the reduced oxygen tension in the atmosphere so that the visitor, who on arrival is reduced to helpless invalidism, in a few days is able to get about, to carry on physiological experiments all day, or to dance away half the night; so that the seasoned engineer or mechanic can do a full day's work; so that the native miner can carry his load of ore up the steep ladders of the mines.

In recent years it has been maintained that the chief factor in this compensation consisted in the development by the pulmonary epithelium of a latent function, the power of secreting oxygen into the blood.¹ As a result it has been claimed that the tension of oxygen in the arterial blood may be kept up, even at an altitude of 14,000 feet, to 90 or 120 mm., that is, to tensions equal to those existing at sea level and nearly twice as great as that of the oxygen which is in the alveolar air at the time. The development of recent methods made it possible to reexamine this question in Peru. There it was found that in no case did the tension of oxygen in the arterial blood exceed its partial pressure in the air of the alveolus, even after three weeks of acclimatization. The arterial blood remained from 81 to 91 per cent. saturated—in contrast to the normal saturation of 95 per cent. which had existed at sea level.

Two other accommodating actions which had previously been described as accompanying life at high altitudes were amply confirmed at Cerro de Pasco.² The first is that the quantity of haemoglobin, or number of red corpuscles, in a unit quantity of blood is increased 20 or 30 per cent. The second is that as a result of an alteration in the activity of the respiratory center, the ventilation of the lungs is sufficient to raise the tension of oxygen in the alveolar air some 15 to 20 millimeters higher than it would have been had the ventilation of the lungs continued as at sea level to maintain the carbon dioxide tension of the arterial blood at 38 or 40 millimeters. As a result the tension and quantity of oxygen in the arterial blood is increased in measure. A second consequence of the increased ventilation of the lungs is that the tension of carbon dioxide in the alveolar air falls to 23 or 25 millimeters.

This is but part of the story. At Cerro de Pasco it was found that when acclimatization was complete the oxygen combining power of the blood had changed. As a result, under a tension of oxygen such as that existing in the alveolar

air at that altitude it now became more completely saturated than it would have, had the blood remained as at sea level. In this way the degree of saturation may be increased about 5 per cent.

One is at once led to search for other alterations which may be correlated with or used to account for this change in the ability of the blood to combine with oxygen. The reduction in the carbon dioxide tension of the arterial blood and alveolar air, already referred to, is suggestive in this connection, for it is known that alterations in the quantity of carbon dioxide present have a great effect on the equilibrium between oxygen and haemoglobin. In fact, a change in the carbon dioxide tension from 40 to 25 millimeters, such as occurs in the arterial blood on going from sea level to an altitude of 14,000 feet, is sufficient to alter the oxygen combining power of the blood in just about the magnitude which was found to occur at Cerro de Pasco. The situation is not a simple one, however, and at present the conclusion cannot be drawn that the alteration is directly due to the change in carbon dioxide tension. The reason for caution is that in the body an important compensation for the reduced carbon dioxide content occurs. If it did not do so the hydrogen ion concentration of the blood would be considerably decreased, for this property is dependent upon the relative quantities of carbonic acid and bicarbonate which are present. In actuality it is found that the decrease in carbonic acid is nearly balanced by a decrease in the bicarbonate of the blood and consequently the reaction is little if any more alkaline than at sea level. In the experiments which demonstrated that carbon dioxide influences the oxygen combining power of the blood, on the other hand, the quantity of bicarbonate was unchanged and consequently the blood became more alkaline as the carbon dioxide tension was decreased. The cases, consequently, are not strictly comparable and judgment must be withheld until more applicable experiments are performed.

The foregoing describes the conditions found in the members of the expedition after a residence of two or three weeks at a high altitude. How much further would these compensations have been developed had they prolonged their stay into months or years? Examination of the Anglo-Saxon mining men and of the native Cerro de Pascoans gives an answer. The former had been in residence at 12,000 or 14,000 feet, save for brief periods, for two to nine years. Of the latter many had been born and lived for generations in the high altitude.

Of the Anglo-Saxons, none showed a tension of oxygen in the alveolar air and arterial blood which indicated that the respiratory compensation had developed further than in ourselves. Nor did any of them exhibit a higher percentage saturation of the arterial blood than did certain members of the expedition. In accordance with this, practically all, and particularly the more

florid types, appeared distinctly cyanotic. Among this group the red blood cell counts also did not exceed appreciably those attained by us during our short stay. These men were undoubtedly capable of much greater exertion than the most fit of the visiting investigators, but the difference was apparently due to such factors as differentiate the athlete from the sedentary worker at low altitudes, rather than to any measurable change in the blood picture.

Turning to the natives of Cerro de Pasco, it is noteworthy that many, especially those of Spanish extraction, exhibited striking signs of chronic anoxemia. Many were cyanosed to a degree not exhibited by the Anglo-Saxons, while clubbed fingers occurred commonly. In the three cases in which the oxygen saturation of the arterial blood was measured, figures were obtained which compared with those from the members of the expedition in whom compensation was least satisfactory (82-86% saturation). In other directions the native Peruvian has acquired characteristics which differentiated him from the Anglo-Saxon. In many the number of red corpuscles far exceeded that found in the most seasoned mining engineer. But of more interest than this, a mere quantitative difference, is the fact that when compared with the European of like stature the native is found to have a chest of considerably greater volume. Whether this modification has become an hereditary character, or is the result of growing up from childhood in a rarefied atmosphere, is an alluring question.

In this as in previous studies of the anoxemia of high altitudes great attention has been paid to the oxygenation of the blood in the lungs. Because a considerable body of data has accumulated concerning this subject, attention must not be allowed to divert from what is really the cardinal problem, namely, the supply of oxygen to the tissues. It is to this end, if any, that the compensations in the oxygenation of the blood are directed.

The problem which confronts the circulatory and respiratory systems is to supply the tissues with oxygen at an undiminished rate when the body is exposed to an atmosphere in which the pressure of oxygen is subnormal. That this may occur it is necessary (1) that the blood contain enough oxygen to meet the requirements of each tissue through which it is circulating, and (2) that conditions shall be such that this oxygen tends to pass across the capillary walls as rapidly as is needed to keep pace with the oxygen consumption within the tissue.

At first sight it would appear that in the degree of anoxemia with which we are concerned it is not the quantity of oxygen which is deficient. To take a normal case, at sea level, the arterial blood is 95% saturated, the venous blood as it returns to the lung may be 65% saturated, the tissues have removed from it but 30% of its total capacity. At an altitude of 14,000 feet had no compensation occurred the arterial blood might

be but 65% saturated, and if the circulation rate and total metabolism remained unchanged, the venous blood as a whole would be 30% less saturated than this, or 35% saturated. This would seem to be a large margin of safety, but it must be noted that it represents the average condition of the venous blood from all parts of the body. Certain organs, and particularly the heart, must reduce the blood far more than this. Whether the margin would be sufficient for these during rest may be doubted; that it would be inadequate during muscular exercise seems very probable.

The chief condition which determines the rate at which oxygen passes from the capillary into the tissues, unless one assumes some secretory power in the capillary wall, must be the mean difference of pressure between the oxygen in the blood and in the cells in question. Unfortunately, this difference in pressure cannot be estimated without a knowledge of the pressure of oxygen within the tissues. We may, however, gain a rough idea of the magnitude of the pressure head of oxygen within the systemic capillaries from a consideration of the oxygen tension in arterial and venous blood. In comparing the conditions observed at 14,000 feet with those obtaining at sea level it was found that the arterial oxygen pressure had fallen from 100 to 55 mm.; the venous oxygen pressure from 35 to 28 mm. Clearly the pressure head of oxygen in the capillaries is reduced, even with the subject at rest and after all measurable accommodations were completed.

How may the various compensatory changes which occur in the blood at high altitudes be evaluated in their effect on the quantity of oxygen available for the tissues and the pressure at which and by which it is made available? The rise in the oxygen pressure of the alveolar air which results from increased ventilation is of obvious advantage, for it will increase commensurately the tension of oxygen in the arterial blood entering the systemic capillaries. And since this increased arterial tension will be accompanied by an increased oxygen content, the removal of a definite quantity of oxygen from the blood in its passage through the capillaries will leave it as venous blood with a correspondingly increased oxygen content and pressure. Because of the peculiar shape of the dissociation curve, the removal of a given quantity of oxygen from the blood will cause a greater drop in the oxygen pressure if the arterial oxygen pressure is high than if it is less so; but even taking this fact into consideration, it may be concluded that a rise in the alveolar oxygen tension will have a considerable effect on the mean tension of this gas in the systemic capillaries.

The change in the oxygen combining power of the blood, which at first sight appears to be such a striking adaptation, is in reality of very little advantage in oxygenating the tissues, aside from the fact that it makes about 5% more oxygen available. The increased oxygen content is held in the blood at no increased pressure, conse-

quently there is no greater tendency for oxygen to pass from the blood to the respiring cells of the body. Similar considerations apply to the augmented oxygen capacity of the blood which results from the increase in the number of red blood corpuscles. There is 20 or 30% more oxygen present in the capillary circulation which is undoubtedly an advantage during exercise, but the pressure which is driving it into the tissues is not directly magnified. In one respect, however, the pressure head is augmented by this phenomenon. Because of the increased capacity of the blood, the removal of a given quantity of oxygen by the tissues will result in a smaller fall in the percentage, to which the venous blood is saturated and consequently to a smaller change in the venous oxygen pressure. One may estimate that an average increase in the oxygen capacity of 20% will serve to raise the venous oxygen pressure three or four millimeters in this way. The polycythemia consequently will have some but not much effect upon the rate at which oxygen is supplied to the tissues.

In the foregoing discussion it has been assumed that the output of the heart and the rate of circulation remained unchanged. If the blood were circulated at a greater rate through the capillary system, this bringing to the tissues a greater quantity of oxygen in a given time, in some measure a deficiency in its oxygen content might be overcome. Moreover, the more rapid the circulation the less oxygen would each increment of blood give up in its passage along the capillary and the less would be the reduction of oxygen pressure in the venous blood. When it is considered that at sea level the blood enters the capillaries with an oxygen tension of about 100 mm., and leaves as venous blood with tension reduced to 35 mm., having given up 25% of its full oxygen capacity, whereas at Cerro de Pasco the arterial oxygen tension may be but 55 mm., and with an equal oxygen consumption the venous tension would fall to 28 mm., it does not seem extravagant to assume that an increase in the circulation rate of one or two hundred per cent. would be required to bring the mean oxygen pressure up to its sea level value. The method which was available at Cerro de Pasco for measuring the output of the heart is liable to errors as large as 20%, but it would serve to demonstrate any change in the circulation rate as great as this. In fact, it showed that the circulation rate does not differ in one direction or the other from the normal value at sea level by more than the limit of experimental error.

When all compensations are considered two facts remain, the implications of which challenge the imagination and point the way toward future investigation. The first is that in the fully acclimated individual the oxygen tension is 45 millimeters below normal in the arterial blood 5 or 10 mm. below normal in the venous blood. The mean pressure head of oxygen in the blood of the systemic capillaries must consequently be less than at sea level. The second

is that the total oxygen consumption of the body at rest is unchanged. How is it that the tissues take from the blood and consume an undiminished quantity of oxygen when it is delivered to them at a reduced pressure? Is there at sea level an unnecessary excess of oxygen pressure in the blood? Or has some unknown compensation taken place in the tissues so that the velocity of oxidation within them is unchanged by the diminished pressure? Has the protoplasm, like the hemoglobin, altered in its affinity for oxygen? These are the problems which future high altitude investigations must attack.

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THE CLINICAL SIGNIFICANCE OF SUDDEN ABDOMINAL PAIN.*

BY ALFRED M. ROWLEY, M.D., HARTFORD, CONN.

The theme of this paper is: Sudden, severe abdominal pain accompanied with shock and followed by muscular rigidity is indicative of a perforative lesion and calls for immediate surgical interference.

The reason I have chosen this subject is because within the last year I have seen several cases presenting the above symptoms in which the surgical treatment was delayed, to the detriment and hazard of the patient, and I am convinced that the operative diagnosis was postponed for too long a time, waiting for the later corroborative signs.

Pain is a relative word used to denote any suffering from discomfort to agony. As here employed, it expresses a sudden, sharp, severe and acute distress, which is generally accompanied with a cry. The cause of the pain is the shock experienced when a foreign substance, the content of one of the hollow viscera, is thrown out into the general peritoneal cavity. The immediate pain is due to the over-distention of the viscera, causing a mesenteric pull, and to the trauma and chemical irritation of the peritoneum, and, I believe, not to the rupture of the viscera, *per se*. For it is well known that the peritoneal covering of the intestine and stomach is not sensitive to trauma, as the bowel may be handled or incised without producing pain, providing there is no tug upon the mesentery, nor irritation to the parietal peritoneum.

The sensory nerve supply of the parietal peritoneum is intimately connected with that supplying the muscle wall, and a tetanic contraction immediately occurs when there has been a peritoneal injury. This persists in a majority of cases, but a subsequent relaxation may occur if the trauma is slight, as that experienced in the out-pouring of gas with but little fluid from a

*Read before the Hartford County Medical Association.

small intestinal perforation; the spasm, however, again reappears if septic peritonitis develops. In this connection it is to be noted that in the artificially produced pneumoperitoneum the patient experiences but the slightest discomfort.

These three symptoms—sudden pain, shock and muscular rigidity—are the cardinal signs of the surgical abdomen. They are, generally, accompanied with other phenomena, depending upon the location and character of the lesion: such as nausea and vomiting and those referable to shock—as cold, sweating skin, pulse of lowered pressure; and rapid, short, catchy respirations, thoracic in character, due to the lack of abdominal mobility, and cyanosis with the expression of the face indicating anxiety and pain.

Later these symptoms may be augmented with others such as obliteration of the liver dullness, rise in temperature and pulse rate, and as the septic peritonitis develops, by a hyper-leucocytosis and increased percentage of polymorphonuclears, their increase generally preceding the total by an hour or two. All these corroborative signs make for a positive diagnosis, but they may not appear for six to eight hours, by which time the operation should have been performed.

I do not wish to minimize the value of the history of the patient, previous to his experiencing pain. This may point to trauma or history of pre-meal distress and often gives a clue to the location of the perforation.

Here, I wish to make myself clear and to differentiate, if possible, between the distress occasioned by a perforation and that experienced in colic, as appendiceal, biliary, ureteral, etc.

The chief characteristic of a rupture or perforation of a viscus is the suddenness of the attack, as a rule, with little, if any, prodromal distress. In a duodenal or stomach perforation there may, or may not be, a history of prolonged indigestion, but the pain experienced following the perforation is entirely different in character from the previous indigestion distress; whereas in the various colics, there are generally anticipatory symptoms. Preceding gall-bladder colic there is generally a heavy, dull pressure and distress in the epigastrium, then the pain of the colic follows, intermittent and increasing in severity with a subsequent lessening in intensity. In appendiceal colic, the first symptom may be epigastric distress, often quite severe in nature and attended with nausea, but the pain is not of the sudden character of perforation and is prolonged, easing on the appendix emptying itself or upon the muscular death of the organ. Even in the very acute fulminating forms of appendicitis, the location of the early tenderness and rigidity, before general peritonitis has developed, will differentiate it from the ulcerative perforations of a viscus into one of the serous cavities. In both of these conditions surgery is imperative.

In the child, the condition of intussusception is attended with sudden pain, shock and some rigidity of the abdomen. This may closely simulate a perforation and may be very difficult to differentiate. In early cases a tumor of the right abdomen can generally be felt. This again is purely a surgical condition.

In adults diaphragmatic pleurisy, hernia, angina pectoris, or the girdling pains from cord lesions may, in exceptional cases, simulate perforative abdominal lesions, but a careful examination and history should clear up the diagnosis.

In the lower abdomen the symptoms experienced by the twisting of the pedicle of a cyst or a pedunculated fibroid, may resemble a low abdominal rupture. In fact, I operated in the New Britain Hospital a few years ago such a case, presenting a low-grade peritonitis with muscular rigidity and found a small fibroid with a twisted pedicle arising from the fundus of the uterus. This patient was seen late and the pre-operative diagnosis was a perforative lesion.

Nothing as yet has been said about the so-called "slow leak" that may occur in the chronic form of perforation—such as in penetrating ulcers of the duodenum. These ulcerations are generally walled off by fat, exudate, omentum or bowel. They are associated with quite severe, sudden pain with little or no shock and the rigidity following is more or less localized. In fact, these symptoms are very typical of other conditions and more nearly resemble the out-pouring of fluid into the lesser abdominal cavity from a necrotic pancreas.

The common causes of perforation of the hollow viscera are—first: penetration by foreign bodies; second: trauma of the abdominal wall, such as occasioned by a blow, sufficient in its force to cause, when transmitted to the viscus, sudden rupture; third: perforation, the result of necrosis, secondary to thrombosis, either pathological or traumatic; fourth: traumatic rupture from over-distention of a viscus from within; fifth: and the most common, the perforation of ulceration due to infection.

Here, I briefly report a few cases seen in the last year to illustrate several of the various causes.

CASE 1.—A. D., male, of South Manchester, Conn.

Seen May 20th, 1921—Physician, Dr. Burr.

Age 44. Occupation: painter. Weight: 160.

Previous History of pre-meal distress and post-meal indigestion.

Present History—At 11 A. M., while at work, he was taken ill with a sudden, severe epigastric pain, accompanied with nausea, vomiting and shock, with abdominal rigidity. He was given morphine and sent to the Manchester Memorial Hospital. Dr. Burr reported the case to me in the early afternoon and we operated him that

evening, at which time he had intense tetanic spasm of the abdominal wall. The pre-operative diagnosis was a perforative lesion of the stomach or duodenum. At operation a perforation of the duodenum was found and sutured. The abdomen was quite full of flocculent fluid. The opening was purse-stringed and then fortified by omentum. No gastroenterostomy was done as the condition of the patient would not warrant it. He made apparently a perfect recovery. The elapsed time in this case was approximately twelve hours from the time of the perforation to the operation too long, I believe, but he was strong and well nourished and the fluid escaped was not too infectious.

CASE 2.—I. T., male, age 65.

Entered Hartford Hospital, May 6, 1921.

Previous history of constipation.

Present History—On the evening of May 5th he took an enema—his daughter thought he used a garden hose. Following this he had severe pain in the abdomen and was admitted to the hospital at 7.15 A. M., at which time his abdomen was generally rigid and he was suffering intensely. Temperature was 101.8, pulse 100, leucocyte count 4,800, differential 63 and 37. Pre-operative diagnosis was made of a perforative lesion of the colon. At operation a small perforation of the descending colon was found. The opening was not at the base of an epiploica, nor was there any gross pathology of the colon. The peritoneal cavity was badly soiled by the escape of fluid. The perforation was closed at operation and the abdominal cavity was drained. Death resulted the following day. The length of time elapsed between perforation and operation was approximately eleven hours, altogether too long a time, and yet he probably had a lethal condition, from the general flushing of the cavity by an enema through the perforation of an organ containing the most infectious bacterial flora.

CASE 3.—J. W., male, age 28. Occupation: fruit salesman.

Entered Hartford Hospital, March 2nd, 1921.

Present History—Yesterday while at work, patient was carrying a box in his arms. He fell and landed with considerable force against the box, injuring his abdomen. He suffered intense pain. He went to his home and his physician, Dr. Couch, sent him to the hospital, at which time his abdomen was generally rigid. His temperature and pulse on admission were normal. The pre-operative diagnosis was a traumatic, perforative lesion of the bowel. At operation a rent was found in the terminal portion of the ileum. This was closed. The general abdominal cavity was drained. The patient made an uneventful recovery. There was considerable lapsing of time in operating this case because of the patient not realizing that he was dangerously hurt, and he delayed calling his physician.

CASE 4.—J. R., male, age 55. Occupation: farmer.

Entered Hartford Hospital, June 26th, 1921.

Present History—The day before, about 4.30 P. M., the patient was struck in the abdomen by a wagon pole, at which time he experienced severe pain, followed by intense distress. Immediately after the accident the patient vomited. On admission there was generalized spasm, some retraction and tenderness over the whole abdomen, most marked in the right iliac fossa. Leucocyte count 15,800—differential, 88/12.

Pre-operative diagnosis—Traumatic rupture of the bowel.

At operation the peritoneal cavity was found filled with intestinal fluid. In the right abdomen the intestines were adherent with fibrous exudate. A perforation was found near the terminal ileum. The opening in the bowel was closed and the abdomen was drained. Patient was discharged from the hospital August 7th, his wound nearly healed. In September he developed a cough and a tuberculous condition of the chest and he has since died. The elapsed time between the injury and operation in this case was twenty-two hours, and the patient consented to be operated only after great urging by his family physician, Dr. Elmer, and the physicians in attendance at the hospital. The operative recovery was quite remarkable, considering the amount of peritoneal soiling.

CASE 5.—G. R., female, age 31. Physician—Dr. Couch.

Entered Hartford Hospital, August 12th, 1921.

Present History—At 8 P. M. on the evening before admission to the hospital, she was seized with sudden, sharp pain in the lower abdomen. The distress continued. Patient was in a condition of shock. Upon admission she was quite tender in the lower half of the abdomen, with but little muscular spasm. The patient's color was white and she looked nearly exsanguinated. Pre-operative diagnosis of a perforation of a Fallopian tube from tubal gestation was made. Before opening the abdomen she was transfused with 540 c.c. of blood. At operation a rupture was found in the left Fallopian tube near the uterus. Much blood was found in the abdominal cavity. The abdomen was closed without drainage. Patient made a good recovery.

I report this case because it seems to me that such ruptures must be classified under perforative lesions. It belongs to the class of perforations occasioned by the over-distention of a viscus from within. These patients have the symptoms of acute pain and shock, but the muscular rigidity of the abdominal wall is likely to be much less because of the less irritating chemical nature of the fluid evacuated. In these cases, many times, operative interference may be delayed. In this particular patient such

delay was attended by great hazard, as the rupture was near the uterus and she apparently constantly lost blood.

CASE 6.—M. S., female, age 73. Physician—Dr. Bean of Rockville.

Entered the Hartford Hospital on May 23rd, 1921.

Present History—Three days ago the patient had a sudden, severe upper abdominal pain accompanied by shock and vomiting, since which time she has been in constant distress, presenting a rigid abdomen with obstinate constipation. On entering the hospital the abdomen was found distended and rigid. She had a leucocytosis of 20,000, differential of 86/14, temperature of 99, rectally, and pulse of 80. The pre-operative diagnosis was obscure, because of her age, distention and rigidity of the abdomen, together with the inability to relieve the constipation by enemata. A diagnosis was made of acute obstruction of the bowel from an unknown cause.

At operation a low mid-line incision was made. The peritoneal cavity contained bloody fluid and fat necrosis was present. This incision was closed. An upper right rectus incision was made. The gall-bladder, which contained no stones, was drained. A colostomy was done to relieve the bowel distention. The patient had a long convalescence, and on July 28th under novocain, sutures were taken in the colon to close the colostomy. On August 8th patient was discharged, since which time she has entirely recovered.

I report this case because it represents the rupture of a viscus from necrosis, although not classified as a hollow organ, yet the out-pouring of a large amount of fluid material into the lesser abdominal cavity may present symptoms closely simulating the perforation of a peptic ulcer. The differentiation generally can be drawn, however, and a diagnosis made if these cases are seen early. They are attended with sudden pain, shock and some abdominal rigidity, but the maximum pain is often to the left of the mid-upper abdomen, attended with cyanosis and some respiratory distress, together with pain in the back, particularly on the left side.

CASE 7.—C. C. McM., Jr., male, age 27.

Entered the Hartford Hospital, Sept. 2nd, 1921.

On the service of Dr. E. A. Wells and Dr. J. B. McCook, to whom I am indebted for the privilege of presenting this case.

Present History—The patient had been in bed at home for two and one-half weeks with a diagnosis of typhoid fever. At 4 A. M. on the day of admission to the hospital he complained of severe, sudden abdominal pain, accompanied with shock, cold and clammy skin and rapid and feeble pulse. He was seen by Dr. McCook, who said that at the time of the first examina-

tion the patient had some abdominal tenderness and some muscular rigidity. He was brought immediately to the Hartford Hospital, and on entering the hospital one hour later, all the abdominal tenderness and muscular rigidity had disappeared. He had a leucocyte count of 3,600 at 7 A. M., differential count of 63/37. At 2 P. M. his leucocyte count was 8,500, differential 85/15. At 7.30 P. M. he had a total count of 7,000, differential 82/18. During the early evening of the day of admission the abdomen was becoming rigid and an operation was performed by Dr. E. A. Wells. An ulcerated perforation of the cecum was found. There was a small amount of fluid in the abdomen, the intestines were inflated and the patient's condition was poor. The perforation was closed. After the operation he was transfused with saline solution. Death ensued on the following day.

This case, to my mind, is by far the most interesting that has been reported, as it illustrates the point that a small perforation may be attended with sudden pain, shock and slight muscular rigidity. All of these symptoms may disappear if the chemical irritation has been slight, only to reappear as the peritonitis develops. It also emphasizes the necessity of opening the abdomen when such symptoms have early been seen.

The diagnosis of perforative lesions, superinduced upon such an enteric infection, is most difficult, as this case illustrates, and only the smallest percentage of cases of typhoid perforations can be saved, even if the operation is performed at the earliest moment.

The percentage mortality demonstrated in military and civil surgery shows that if the perforative lesion of a hollow viscus is operated within the first six hours a recovery may be expected. After a longer elapsed time the percentage of recoveries rapidly falls.

In writing this paper I have had one thought in mind,—to emphasize the necessity of not waiting for the corroborative symptoms of hyperleucocytosis, increase in temperature and pulse rate and the obliteration of the liver dulness, but to consider the three important signs of sudden, acute pain, shock and muscular rigidity, and upon these to advise and do an immediate operation.

ERYTHEMA MULTIFORME BULLOSUM CAUSED BY ARSENIC. REPORT OF A CASE.

BY WILLIAM J. MACDONALD, M.D., BOSTON.

Attending Dermatologist to Carney Hospital.

Erythema multiforme is an acute inflammatory disease characterized by a reddish, macular-papular or nodular eruption, which may

rarely become vesicular or bullous. The individual lesions vary in size and shape. The onset is sudden, and it attacks the extremities as a rule, but may be more or less universal. The eruption is not markedly pruritic, is usually self-limited, and the cause has to be sought for with relentless diligence, for it is oftentimes very baffling. In the dermatological out-patient department at Carney Hospital, the disease crops up occasionally, especially at the present time, when the school children are being vaccinated in thousands. The macular-papular type of the disease is that most usually seen. The bullous type is not common. The following case presents an interesting etiological factor.

REPORT OF CASE.

M. R., female, aged 40 years, was admitted to Carney Hospital on June 7, 1922, in the service of Doctor Edward J. Denning, who referred the case to me. The patient presented an acute bullous eruption of the palmar and dorsal surfaces of the hands and fingers, and the plantar surfaces of the feet. She complained of itching and a feeling of tension and burning, but no pain.

The bullae varied in size from that of a pea to the dimension of a pigeon's egg. They were very tense and, from confluence, some were multi-locular. The skin, raised over the tense bullae, was pale and white. The eruption was confined to the parts mentioned. The contents of the bullae consisted of clear serum.

Nine days previously, on May 30, the patient had consulted a dental surgeon. A carious tooth was treated and an arsenical preparation was inserted in the tooth for the purpose of devitalizing the nerve of supply. Two days later, on June 1, she noticed that her hands and feet were slightly swollen and were itchy. On June 5, she consulted a physician and was given Fowler's solution, four minims thrice daily, after meals. After the fourth dose she fainted, for the first time in her life. On the same day, the bullous eruption suddenly appeared. She was admitted to Carney Hospital on June 7.

A general physical examination revealed a fairly good state of health, and an entire absence of past accidents, injuries, or operative procedures. Temperature on admission was 99.8° F. On June 13, 14, 15, 16, it rose to 101° F., but fell to normal on the latter date and remained normal for the remainder of her stay in hospital.

Pulse rate averaged 90 per minute up to June 16, when it became and remained normal.

Alimentary System: Beyond an injected condition of the gums, oral mucous membranes, fauces, and palate, and a chronic intestinal stasis associated with haemorrhoids, nothing abnormal was discovered.

Cardio-vascular System, normal.

Respiratory System, normal.

Genito-urinary System, normal.

Urine: 1025, acid, trace of albumen, no sugar, bile, blood, or pus. Color was amber. Microscopical examination showed a considerable number of leucocytes and squamous epithelial cells.

Teeth: Pyorrhoea about the lower centrals and laterals. An x-ray picture showed periodontal infection about roots of the upper right bicuspid.

Skin: Patient had a past history of eczema following the use of "Metol" used for photographic purposes.

TREATMENT.

Diet: Liquids, non-protein.

Internal Medication: High rectal enemas twice daily for the first week. Atropine sulphate, gr. 1/120 hypodermically at night. Magnesium sulphate, half an ounce twice daily.

External Treatment: The bullae were opened and the affected parts soaked in hot 1-5000 potassium permanganate for fifteen minutes twice daily, followed by crude coal tar. Crude coal tar, 1 part; zinc oxide, 1 part; cornstarch, 8 parts; petrolatum, 8 parts.

June 9, decided improvement followed the relief of tension consequent on opening the bullae and the local treatment just detailed.

June 14, the eruption had passed into a sub-acute stage associated with a denuded epidermis and a few outlying pea-sized bullae. Carbolic lotion 1-1000 now replaced the tar, the parts being kept moist with the application.

June 21, the eruption having practically disappeared, our purpose was now to get the hands and feet in a suitable state to travel, as the patient was due to sail for France in a few days. This was accomplished by means of alcoholic lotions.

July, recovery; discharged from hospital.

September 2, writing from Paris, the patient reports that she has had no further trouble, and that her hands and feet have completely recovered.

BENJAMIN FRANKLIN AS A MEDICAL CONTRIBUTOR.

It appears, according to the *Journal of the Florida Medical Association*, that in Franklin's day there was little or no medical literature in America; that in 1785 he invented bifocal lenses and a flexible catheter, and contributed to the treatment of nervous diseases by electricity. He wrote on deafness, gout, sleep, lead poisoning, heat in the blood, infection from dead bodies, death rate in infants, and medical education. He wrote a history of the Pennsylvania Hospital, of which he was the principal founder (1751). He also wrote a pamphlet on inoculation in smallpox.

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PNEUMONIA.

THE *Bulletin* of the Chicago School of Sanitary Instruction, issued by the Chicago Department of Health, warns of the imminence of the pneumonia season and announces that the Department Laboratories are prepared to furnish specific antigens for Types I, II, and III, and also a combined antigen for Group IV, to be administered subcutaneously for both prophylaxis and treatment of the disease.

Osler's Captain of the Men of Death has ridden triumphantly among us for many years, his toll of lives scarcely affected by the earnest attempts that have been made to unseat him. Now that the vanguard of his army is sending its scouts through crowded cities and scattered hamlets it may be well to take account of stock and see what are our most effective weapons of defense.

SPECIFIC TREATMENT.

Specific antigens or vaccines have seldom been proven of great value in the active treatment of acute infectious diseases. Pneumococcus vaccines for treatment and prevention have been experimented with largely, and their use often been advised, as is apparently being done this fall in Chicago, but strong proof of their efficacy in their present stage of development is still questionable. It is not our purpose to

discourage attempts in this still fruitful field, but it would be unwise to place too much reliance on an insufficiently tested weapon.

The Rockefeller Type I serum has been extensively used and has apparently met with considerable success in the treatment of favorable cases of this type of lobar pneumonia. Its use, however, even in the specific type, is limited, and some investigators entertain doubt as to its practical value. The secret of its success, where success has been attained, rests in its earliest possible administration, as with antitoxin. After the fourth or fifth day of the disease little benefit may be expected from its use. The case must be typed early, serum injected according to the Rockefeller technique, with due regard to the dangers of a preëxisting protein sensitization, and the dose must be repeated at frequent intervals as long as the temperature stays up, or until at least six doses have been given. As with all our biologic therapy or with our therapy in general, to a greater or less degree, the possibility of failure must be reckoned on.

Potent and effective sera have not yet been developed for Type II and III pneumonias, and Type IV forms a heterogeneous group that does not lend itself to specific antibody formation.

GENERAL TREATMENT.

The general treatment of pneumonia has been one of the duties of the practitioner since the day of Hippocrates, and but little need be said concerning it. Fresh air has been indicated in all respiratory diseases, but we believe that the use of cold fresh air may be abused. Zero temperature may be an ordeal difficult to endure, and we would make a plea for moderation in this respect. Fluid should be forced, nutrition maintained, and distention avoided; further treatment concerns the comfort of the patient, which can often be attained by the use of the head-rest, the chest swathe, and the judicious employment of sedatives and narcotics. Many men still make a routine practise of cardiac stimulation. In extremely dyspnoeic cases oxygen, by the Barach method or with the mouth tube, is a factor for comfort and may even turn the tide of life or death. Empyema must always be suspected with a prolonged temperature or increased respiratory embarrassment, but without increased discomfort the use of the needle may be cautiously delayed. Empyema, unless extreme, should not be operated on in the presence of pneumonia. The prognosis of streptococcus empyema is improved by closed drainage, as was strikingly shown in army experience.

PROPHYLAXIS.

Pneumonia is a specific contagious disease and suitable precautions should be observed.

The following reasonable suggestions are published in the Chicago *Bulletin*, previously mentioned:

"1. Be regular in your habits of living as to diet and proper rest.

"2. Avoid undue and prolonged exposure to wet and cold.

"3. Get as much exercise in the open air as you can.

"4. Dress so that you will feel comfortable in the house and equally as comfortable when out of doors in a lower temperature.

"5. Keep your living rooms at a temperature not exceeding 70 degrees. For people in normal health and properly clad, 68 degrees is better.

"6. Keep your feet dry and warm.

"7. Do not cough or sneeze in anyone's face or allow others to cough or sneeze in your immediate presence.

"By observing these suggestions you can greatly lessen your chances of 'catching' pneumonia and be more likely to get through the winter without needing the services of the undertaker."

POOR CALIFORNIA AND FORTUNATE WASHINGTON.

THE *Journal of the American Medical Association* commiserates California because its people "can have their backbones chiropractically analyzed and adjusted and their inflamed appendixes osteopathically rubbed to the point of rupture." The writer should have added that their cancers can be manipulated and stimulated to added activity, that children may die of diphtheria, that typhoid fever, smallpox and other communicable diseases may be spread and a host of other diseases with recognized pathology may progress, while the deluded unbelievers in scientific medicine are under the control of these inadequately educated practitioners. History has demonstrated these assertions.

In contrast, Washington is to be congratulated for the repeal of the law passed in 1921 which exempted school children from physical examination. The *Journal of the American Medical Association* reports that the objectionable statute was said to have been enacted as a result of the work of the Christian Scientists.

All honor to a state in which public sentiment has been developed to that degree of intelligence that makes possible the overthrow of ignorance and prejudice! Christian Science devotees should join forces with the Holy Rollers. They might then succeed in promoting greater sacrifices of human life.

A LAY EDITOR'S VIEW OF THE NOSTRUM EVIL.

Capper's Weekly, a Minnesota paper published by Senator Capper, has been publicly denounced by the Fairmont (Minnesota) *Daily Sentinel* as a paper claiming for its motto "A Champion of Human Welfare," but containing "column after column of the vilest, lowest, beastliest, most misleading, deceptive, dishonest and debauching advertisements of nostrums and alleged cures of diseases that are contained in any paper in the United States that is permitted to circulate through the mails."

It is encouraging to find lay editors who will come out boldly and say what they think about the type of fraudulent medical advertising that is still printed in so many publications. The American Medical Association is doing its best to protect the country against this sort of deceit. We welcome to the ranks all others who will aid in this much needed housecleaning.

DOCTORS AS SUCKERS.

One of the definitions of the word "sucker" found in Webster's Dictionary is "A person easily duped." Therefore, this opprobrious term may be used in English composition. Whether it may be applied to doctors may be open to debate, but it is a fact that physicians and clergymen are quite generally believed to be easy marks for unscrupulous vendors of stocks and often become the victims of schemers who hold out alluring promises of fabulous returns from alleged investments.

The inspiration for these remarks is found in a circular forwarded by a prominent member of the profession, with the suggestion that a brief discussion of the pitfalls prepared for the unwary may be in order. This circular is printed on good paper and sets forth that the recipient is invited by a board of directors to indicate his interest by signing a card which suggests that "You may favor me with details of this enterprise at your earliest convenience." Among the list of directors may be found the names of men with imposing scientific, business and literary titles and associations.

As usual, the advertised corporation has been formed for the purpose of manufacturing a product according to a process which places it at an advantage over all competitors. The implied suggestion is that investors in the stock will secure enormous profits.

We hope that those physicians with the gambling fever, who have been led to invest, will realize large returns, but we would like to suggest that in the future the rule should be adopted of making a careful analysis of opportunities for investment before parting with hard-earned money and never buy undeveloped prospects.

Too many young physicians put money into unsound enterprises with the hope of large profits. We contend that sick people should always consult expert advisers. In turn, physicians should consult business experts when they have money to invest. The speculators and plungers, as a rule, do not succeed financially. The man who puts his money in savings banks and government bonds will, ninety-nine cases out of a hundred, be better off when he reaches sixty years of age than the man who responds to alluring circulars. If one cares to go beyond absolutely safe investments let him go to a house with an established reputation for prudence and business sagacity. Even then, the man who invests in stocks is very fortunate if he never suffers loss. Finance is an intricate and complicated problem and some of its most brilliant exponents have suffered great reverses.

Our advice to the doctor is to play the financial game safe and spend energy on the practice of medicine, exercise business acumen in collecting accounts and invest only in recognized sound securities. Careful attention to the practice of medicine, coupled with industry, will almost invariably bring larger returns than speculation. Avoid the danger of loss with its attendant distracting anxiety. Do not enter the sucker class.

THE NEW PEDIATRIST.

Dr. L. Emmett Holt, president of the Child Health Organization of America, in addressing the American Child Hygiene Association last October sounds perhaps not a new, but an important note in stressing the need for a new type of pediatricist, one who knows not merely the diagnosis and treatment of the diseases of childhood, but the growth, development, and needs of the normal child, physical, mental, and educational.

Dr. Holt has emphasized the need of all time and happily the trend of the present time. Prevention is more important than treatment, and hygiene than pathology, and only by the understanding of the normal can we understand either. Herein lies the great failure of modern medical training, for the medical school teaches little but disease, and the hospital ministers only to the sick. This need is perhaps most keenly felt in Pediatrics, for Pediatrics should be essentially the prevention of disease and the regulation of normal development.

How much does the interne, freshly graduated from a Pediatrics Hospital service know about the minutiae of normal maternal nursing? The use of protein milk in acute indigestion with diarrhoea he is thoroughly familiar with, as he is with the interpretation of serum protein concentration and the indication for in-

travenous glucose. Should my boy play football? Will rowing injure his heart? Such questions are undoubtedly often asked and presumably always answered, but on what real knowledge of facts are the answers based? These questions may sound trivial, but they serve to exemplify the position in which the embryonic scientific pediatrician will find himself some day.

A BETTER CHANCE FOR THE BABIES

The Metropolitan Life Insurance Company's Statistical Bulletin for October points out that the first month is the most dangerous period of life. It is easier to survive a year at the age of 65 than for an infant to live through its first month. In the United States each year over 105,000 babies die before they are a month old. Infant mortality after the first month has been cut in half by better infant care, but that during the first month has been little affected. That this can be greatly improved has been shown in experimental groups. The obvious methods are better prenatal care, reducing the number of premature and still births, better obstetrics, and better care during the entire puerperium.

CHOLERA IN THE PHILIPPINES.

Epidemic and endemic cholera in the Philippines, according to L. Lopez Rizal, Philippine Health Service, in the Monthly Bulletin of the Philippine Health Service for June, 1922, is due to vibrio carriers. It has been found that the vibrio may persist for years in man, during which period it undergoes changes as to its agglutinability.

The problem of disinfecting carriers has not been solved and is a task to which the Health Service has set itself.

SMALLPOX IN THE PHILIPPINES.

Smallpox has never disappeared from the Philippines, but its incidence has been greatly checked since compulsory vaccination was begun years ago. Its persistence in endemic form and the epidemics of 1918 and 1919 are due to the difficulty, with a small force and an insufficient appropriation, of adequately vaccinating the provincial population, and especially the large mass of shifting population. A more determined effort is now being made to vaccinate the small children, believing that in this way an immune population can eventually be secured.

DR. ARTHUR A. LAWRENCE SUSPECTED OF ILLEGAL PRACTICES.

The *Boston Post* has published an account of the alleged detection of a faro fraud in which it is also alleged that Dr. Arthur A. Lawrence is an accessory in association with James Yearley of Detroit. Some time ago a woman was treated in the Boston City Hospital for conditions following an abortion. This woman stated that the abortion was performed by Dr. Lawrence, but when the case was brought before the Board of Registration in Medicine she declined to identify Dr. Lawrence as the one responsible for her condition. Subsequently a woman investigator testified before the Board that Lawrence had agreed to perform an abortion. This was construed as unprofessional conduct. After many delays secured by attorneys the Board on April 18, 1922, suspended the license of Lawrence for one year.

One attorney for Lawrence developed animosity toward the Board during these procedures, and attempted to secure legislation designed to inhibit the powers of the Board, but did not secure sufficient support for his recommendations.

If the guilty association of Lawrence with law breakers is demonstrated it will be confirmatory evidence of that quality of mind which leads a man to enter upon a criminal life for the purpose of winning a money stake and will give to that Board evidence which would warrant permanent revocation of his registration as a physician.

The faro game may be more dangerous for a criminal than gambling in connection with maternal and foetal life.

News Notes.

NEW OFFICERS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.—At the last annual meeting the following officers for the year 1922-1923 were elected: President, E. C. Levy of Richmond, Va.; executive secretary, A. W. Hedrich of New York; treasurer, Roger I. Lee of Cambridge, Mass.

SOMETHING BOSTON WILL NEVER HAVE—AN EIGHTEEN-STORY HOSPITAL BUILDING.—On November 5 the corner-stone of the new Beth Israel Hospital, New York City, was laid. This structure is to be the tallest hospital building in the world, with four floors below the street level and fourteen floors above. It will be the last word in hospital design and construction, accommodating easily patients demanding every specialist's care—and all in a ground space of 123 by 184 feet!

DEATH RATE IN BOSTON.—During the week ending November 25, 1922, the number of deaths reported was 226, against 212 last year, with a rate of 15.43. There were 33 deaths under one year of age, against 32 last year. The number of cases of principal reportable diseases were: Diphtheria, 70; Scarlet Fever, 55; Measles, 45; Whooping Cough, 62; Typhoid Fever, 4; Tuberculosis, 39. Included in the above, were the following cases of non-residents: Diphtheria, 8; Scarlet Fever, 10; Typhoid Fever, 2; Tuberculosis, 6. Total deaths from these diseases were: Diphtheria, 4; Scarlet Fever, 1; Whooping Cough, 4; Tuberculosis, 12. Included in the above, were the following cases of non-residents: Scarlet Fever, 1.

PITTSFIELD NEWS.—Dr. B. W. Paddock of Pittsfield is away on his vacation, which he is spending in the New Brunswick woods. He expects to be back at work December 1.

Dr. J. B. Thomes has just resumed practice after a three weeks' vacation in Maine, where he was very successful in hunting.

Dr. J. A. Sullivan of Pittsfield is enjoying a 3 months' tour of Europe.

Dr. W. Carleton Warrick, formerly of Detroit, Michigan, has located in Pittsfield, where he will look after the practice of Dr. F. A. Roberts while the latter is spending his honeymoon on a Caribbean cruise.

A. P. MERRILL.

A WELL-MERITED AWARD.—Dr. W. B. Cannon, Professor of Physiology in the Harvard Medical School, has been awarded a distinguished service medal citation for his work overseas. Dr. Cannon holds a commission of Colonel in the Medical Officers' Reserve Corps. He has been connected with the Harvard Medical School since 1892 and was appointed Higginson Professor of Physiology in 1906. He is a recognized authority in his chosen field. He has written many papers and has given freely of his time in aiding movements inaugurated for the instruction of the public on matters of public health.

His name will always be associated with the introduction of the x-ray method of studying the gastro-intestinal movements, the investigations on adrenal glands, and more recently with the scientific interpretation of the phenomena of shock and its rational treatment. As a teacher of physiology his position is pre-eminent.

TOUR DE LUXE TO A. M. A. MEETING. SAN FRANCISCO, 1923.

The Medical Society of the State of New York is busy arranging a tour to the A. M. A. session at San Francisco, June, 1923.

Our President, Arthur W. Booth, M.D., cordially invites all the Delegates and Fellows from the Eastern States who are planning to attend the session, together with their wives, sweethearts, and friends, to join this tour to California and the Canadian Rockies.

Our train de luxe leaves New York Thursday, June 14, 6:00 P.M., arriving in Chicago 3:00 P.M., Friday, where we will enjoy a drive over the Lake Shore and Boulevard System; our train is transferred to the Santa Fe System and we leave at 6:00 P.M.

In Kansas City we have another delightful drive the following morning.

Our next stops are to be Colorado Springs, Albuquerque, Grand Canyon, San Bernardino, with auto drive through Redland, Smiley Heights and Riverside, then to Los Angeles.

Next Santa Barbara, Del Monte, Santa Cruz and the Big Trees, arriving at San Francisco early Monday morning, June 25.

We leave San Francisco, Friday, June 29, 10:00 P.M., stopping at Shasta Springs, Portland, Rainier National Park, Columbia River and Seattle.

We have a day's boat sail up Puget Sound to Victoria and Vancouver, with drive in both cities, after which we take our train and continue through the beautiful Canadian Rockies, stopping at Lake Louise and Banff.

Then on to St. Paul, Chicago and home by the Broadway Limited, arriving in New York, Thursday, July 11, 9:40 A.M.

This tour has everything attended to, and the price will be lower than any individual can obtain.

The luxury and freedom from detail and cares, with the opportunity to make friendships will be appreciated by all.

Our special train will be waiting for us at every stop, autos, baggage transfer and hotels, attended to everywhere except at San Francisco, where the Fellows will probably want to go where their section is located.

To insure accommodations in the best hotels en route we must have one hundred reservations by December 30.

All inquiries are to be sent to Malcolm C. Rose, M.D., Chairman of Committee, 152 West 42nd Street, New York City.

THE COMMUNITY HEALTH ASSOCIATION.

The suggestion has been made that the Instructive District Nursing Association and the Baby Hygiene Association should be combined under the title of the Community Health Association.

This is in the form of a recommendation to the members of the corporations.

Mr. William A. Dupee has been chosen as the head of this association; Mrs. E. A. Codman and Dr. Richard M. Smith as the vice-presidents; Mrs. Morton P. Prince as secretary; and Ingersoll Bowditch and Charles E. Spencer as the treasurers.

The directors are Robert Amory, Miss Mary A. Barr, Miss Esther G. Barrows, Dr. Alice F. Blood, Mrs. J. Gardner Bradley, Mrs. Philip S. Dalton, Miss Emily G. Denny, Mrs. Robert L. DeNormandie, William Ellery, Miss Lina H. Frankenstein, Mrs. L. Cushing Goodhue, Mrs. John L. Grandin, Mrs. N. Penrose Hallowell, Dr. Alice Hamilton, Mrs. John C. Hunt, Mrs. Carl T. Keller, Mrs. James Lawrence, Charles E. Mason, Dr. Francis X. Mahoney, Mrs. Frank H. Monks, Dr. Robert B. Osgood, Mrs. Francis W. Peabody, Miss Gertrude W. Peabody, James J. Phelan, Dr. Stephen Rushmore, Mrs. Richard P. Strong and Felix Vorenberg.

Miss Mary Beard, formerly in charge of the Instructive District Nursing Association, will be the general director. Miss Rand will direct child hygiene and Miss McCann the home visiting department.

HOSPITAL HONORS THIS COUNTRY'S FIRST TRAINED NURSE.



Miss Linda Richards was the guest of honor at the New England Hospital for Women and Children, at Boston, Mass., during the fiftieth anniversary of its training school and the sixtieth anniversary of the founding of the hospital itself. Miss Richards was the first woman to be graduated from this school and at the same time the first trained nurse in the United States.

Miss Richards upon graduation was called to the Bellevue Hospital, N. Y. City, where she became Assistant to Sister Helen, the English nurse who organized it. From there she returned to Boston to organize the training school of the Massachusetts General Hospital, later performing the same service at the Boston City Hospital.

REQUESTS TO HOSPITALS.

By the death of the widow of Arthur F. Estabrook the provisions of the will of Mr. Estabrook become operative, and the following named institutions, among others, will profit by legacies: To the Massachusetts Homeopathic Hospital, \$100,000; the Children's Hospital, Boston, \$10,000; the Boston Floating Hospital, \$10,000; the Eye and Ear Infirmary, \$10,000; Massachusetts Association for Promoting the Interests of the Adult Blind, \$10,000.

Miscellany.

OPINIONS OF AMERICAN STATESMEN ON EDUCATION.

THE good education of youth has been esteemed by wise men in all ages as the surest foundation of the happiness both of private families and of commonwealths.—*Benjamin Franklin.*

Promote, then, as an object of primary importance, institutions for the general diffusion of knowledge. In proportion as the structure of a government gives force to public opinion, it is essential that public opinion should be enlightened.—*George Washington.*

Wide and judicious modes of education, patronized and supported by communities, will draw together the sons of the rich and the poor, among whom it makes no distinction; it will cultivate the natural genius, elevate the soul, excite laudable emulation to excel in knowledge, piety and benevolence; and, finally, it will reward its patrons and benefactors by shedding its benign influence on the public mind.—*John Adams.*

A system of general instruction which shall reach every description of our citizens from the richest to the poorest, as it was the earliest, so will it be the latest of all the public concerns in which I shall permit myself to take an interest.—*Thomas Jefferson.*

DEATH RATES, 1921.

THE Department of Commerce announces that the compilations made by the Bureau of the Census indicate that 1921 was a remarkably healthful year. Record low death rates appear for nearly all areas. The lowest state rate (8.2) is shown for Montana, and the highest (14.2) for Vermont. For cities which at the last census had populations of 100,000 or more, the lowest rate (7.5) is shown for Akron, and the highest (17.4) for Memphis.

SHINGLES AND CHICKEN-POX.

MANY writers have noted an interesting concurrence of herpes zoster and variella, and have attempted to link the two together as different forms of the same disease, according to C. Eugene Riggs, in *Minnesota Medicine*. According to the theory of some, the organism is the same for both diseases, but blood-borne in the case of varicella, in the spinal fluid in the case of herpes. Instances of chronological relationship between the two are of course not wanting; but is this more than coincidence?

The evidence so far seems insufficient.

NEW AND NON-OFFICIAL REMEDIES.

DURING November the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-Official Remedies:

Lederle Antitoxin Laboratories: Mercurialized Serum-Lederle for Intravenous Use.

Charles Leich & Co.: Sulfarsenol.

Mallinckrodt Chemical Works: Barium Sulphate Pure. M. C. W.

H. A. Metz Laboratories: Benzozol.

Parke, Davis & Co.: Silvol.

Arsenobenzol-Dermatological Research Laboratories and Arsphenamine-Dermatological Research Laboratories: These products are now marketed by the Abbott Laboratories as Neorsphenamine-D. R. L. and Arsphenamine-D. R. L. The Council has continued the acceptance for New and Non-Official Remedies under these names.

PUBLIC HEALTH REPORTS (UNITED STATES PUBLIC HEALTH SERVICE) NOVEMBER 3 1922.

VACCINATION OF MONKEYS AGAINST PNEUMOCOCCUS TYPE I PNEUMONIA BY MEANS OF INTRATRACHEAL INJECTION OF PNEUMOCOCCUS TYPE I VACCINE. (CECIL AND SEFFEN.)

THE intratracheal injection of pneumococcus vaccine affords just as satisfactory an immunity against pneumonia as that induced by subcutaneous or intravenous injections. This method of vaccination with three doses of Type I vaccine renders monkeys completely immune against experimental pneumococcus Type I pneumonia. The mere spraying of the throat with pneumococcus vaccine will not produce complete immunity against pneumonia in monkeys. The immunity established by intratracheal injection of pneumococcus vaccine is probably cellular in character, since little or no protective substance against pneumococcus can be demonstrated in the serum of monkeys thus vaccinated.

AMERICAN RELIEF ADMINISTRATION.

Moscow.—Flying detachments of Russian physicians to administer salvarsan to sufferers from recurrent typhus, which is increasing with the coming of winter, is the latest emergency disease prevention step taken by the medical department of the American Relief Administration in the district of Rostov-on-Don, according to Dr. Henry W. Beeuwkes, chief of the A. R. A. medical division in Russia.

These "flying detachments" are equipped to administer the salvarsan to fever sufferers in their homes. It has been found that salvarsan is an effective aid in the breaking up of recurrent fever. This disease has increased throughout Russia due to the wet and cold weather.

The A. R. A. medical representative at Rostov reports that sanitary and other health conditions are much improved in Rostov over a year ago.

Information just received at headquarters here from Minsk announces that a surgical hospital at the big refugee camp at Kozreva opened on October 15th.

Asiatic cholera, one of the most fatal of epidemic diseases, has been so successfully combated in Russia by a wholesale inoculation of the population that in the Volga basin and the districts of Orenburg and Ufa, where in 1921 there were 93,784 recorded cases of the disease, this summer saw only 5,386 cases, a decrease of more than 94 per cent. for that area.

It was in this region that the inoculation campaign waged by the American Relief Administration was most intensive. In the Ukraine, where operations started later, and where the inoculations were less frequent, the cholera cases increased, but the falling off in the Volga areas more than offset this increase in the Ukraine and the records show for the summer of 1922 only 67,512 cases of cholera in all Russia (including the Ukraine) as compared with 176,885 cases in the summer of 1921. This is a decrease of more than 61 per cent.

DEPARTMENT OF COMMERCE, WASHINGTON.

MORTALITY FROM CANCER, 1921.

Washington, D. C., November 14, 1922.—The Department of Commerce announces that the returns compiled by the Bureau of the Census show that over seventy-six thousand deaths were due to cancer in the death registration area of the United States in 1921; and assuming that the rest of the United States had as many deaths from this cause in proportion to the population, the total number of deaths from cancer in the entire United States for 1921 was

93,000, while for 1920 the number is estimated as 89,000, or 4,000 less than for 1921.

The trend of the cancer death rate is upward, the rate for 1921 being higher than that for any earlier year in 23 of the 34 states for which rates are shown. The cancer death rate in the registration area in 1921 was 86 per 100,000 population, against 83.4 for 1920. In comparing the death rate from cancer in one state with that in another, the Bureau uses "adjusted" rates in order to make allowance for differences in the age and the sex distribution of the population, because, generally speaking, only persons in middle life and old age have cancer, so that a state with many old persons may be expected to have more deaths from cancer than a state with comparatively few old persons.

The highest "adjusted" cancer rate for 1921 is 99.6 per 100,000 population for the state of Massachusetts, and the lowest is 47.6 for the state of South Carolina.

For a few states adjusted rates have been calculated separately for the white and colored population. In this group of states the highest adjusted cancer rate for the white population is 95.9 per 100,000 population for New York, and the highest rate for the colored population is 90.6, also for New York. The lowest adjusted cancer rate for the white population is 51.5 for Tennessee, and the lowest for the colored population is 36.4 for Florida.

Summarized briefly, the adjusted rates show that the Northern states have comparatively high and the Southern states comparatively low cancer mortality, while there is little difference between the adjusted cancer rates of the white and colored races of the same states. In other words, the white and colored races seem equally susceptible to cancer, but both races seem less susceptible in the South than in the North.

MALNUTRITION AND SCHOOL FEEDING.

Bulletin, 1921, No. 37, of the Bureau of Education of the Department of the Interior, on Malnutrition and School Feeding, shows interestingly and convincingly the need of proper food and nutritional training for school children, and the benefit that is derived from their provision.

Malnutrition has so far been most extensively studied in Great Britain. The grading of nutritional defects has been difficult, but a practical working method, the "Dunfermline Scale," has been devised by Dr. Alistair MacKenzie, of Dunfermline, Scotland. According to this scale all children are divided into four groups, as follows:

(1) "Excellent" means the nutrition of a healthy child of good social standing.

(2) Children whose nutrition just falls short of this standard are "good."

(3) Children "requiring supervision" are on the border line of serious impairment.

(4) Children "requiring medical treatment" are those whose nutrition is seriously impaired.

Without a uniform method of diagnosis, however, there is naturally a great disparity in the statistics of malnutrition, estimates of its prevalence running from 1 to 50 per cent. of the school population in communities otherwise similar. The chief causes of malnutrition are given as poverty, ignorance, and disease, malnutrition existing in inverse proportion to the family incomes.

School feeding in France antedated that in England, but it has reached the height of its development in the latter country, the Boer War being largely responsible for bringing the issue to the front. In December, 1906, the education (provision of meals) act was passed by Parliament, the act being predicated on the theory that no child should be deprived of the full value of his education because of lack of food.

Philadelphia is responsible for the inception of the school feeding idea in this country, the first penny lunch having been started in that city in 1898. Since then most of the larger cities have adopted it. Chicago at present has the most intensive school lunch system in America. Boston for years made no provision for lunches in the elementary schools, this task being finally taken on during the war by a voluntary committee as part of the food-conservation work. The high school lunches in this city, however, administered by the Women's Educational and Industrial Union, compare favorably with those of any city in the country.

Dr. William R. P. Emerson, of Boston, contributed the first constructive work in attacking defective nutrition by organizing his nutrition clinics and classes. It is through this work, through instructing children in social hygiene and the values of diets, that the best results will come, and not from the merely temporary provision of such food.

SUBCUTANEOUS ETHER IN PERTUSSIS.

Rocco Mancinelli, in *La Pediatra*, September 1, 1922, p. 801, reports satisfactory results from the subcutaneous injection of ether in whooping cough.

One c.c. was used in the first year of life, $1\frac{1}{2}$ c.c. in the second year, and 3 c.c. in the third year. Injections were given every other day, the number varying from 5 to 10. Marked improvement was found in 38 out of 61 cases.

GROUPING OF MENINGOCOCCUS STRAINS.

The United States Public Health Service is working on the serological grouping of meningococcus strains. As is well known, there are a

larger number of strains of meningococci, differentiated on both their tropin and agglutinin reactions. The problem is to develop a polyvalent serum that will combat the common pathogenic strains, and each year it is necessary to add new strains and eliminate old ones. The organism causing a case of meningococcus meningitis should be cultured and agglutinated with known sera in order that a potent serum may be used for treatment.

Obituary.

JOHN WASHBURN PRATT, M.D.

Dr. John W. Pratt, Resident Physician to the Massachusetts General Hospital from 1886 to 1897, died at his home in Dedham, November 17, 1922, from pneumonia.

He was the son of Dr. Calvin Barton Pratt of Bridgewater, where he was born, February 9, 1854. His brother, Dr. Calvin Pratt, long a practitioner of that town, died there at the age of eighty last June, as noted in the *Journal*. John attended Exeter Academy, spent a year at the Massachusetts Institute of Technology, and took the degree of Ph.G. at the Massachusetts College of Pharmacy in 1877. Entering Harvard Medical School, he served as surgical house officer at the Massachusetts General Hospital during the latter part of his course, and on graduating in 1886 became resident physician. In 1897 he began private practice in Dedham, where he served as Associate Medical Examiner of the first Norfolk District, physician to the Norfolk County Jail and to the Dedham House of Correction. For several years he was secretary of the Dedham Board of Health.

He is survived by his widow, Mrs. Marion E. Pratt, a son and a daughter.

RECENT DEATHS.

DR. JOEL FRANK TRULL, founder of the Trull Hospital of thirty-five beds, in Biddeford, Maine, in 1901, has died in that city, following a stroke of paralysis. The end came on November 22, 1922, when he was fifty-four years old. He was a graduate of Boston University School of Medicine (Homeopathic) in 1894 and had long been a prominent practitioner in Biddeford.

DR. FLAVEL SHURTLEFF THOMAS died in South Hanson, November 26, 1922, at the age of seventy. He was born in that town September 7, 1852, the son of Isaac and Abbie Shurtleff Thomas; attended Hanover Academy and Phillips Andover Academy and Harvard Medical School, where he took an M. D. in 1874. Subsequently he received the degrees of S. B. from Syracuse University (N. Y.) in 1885; S. M. from the same source in 1886, and D. V. S. from McGill in 1890. He joined the Massachusetts Medical Society in 1875 and resigned in 1888. Dr. Thomas married Caroline M. Smith, daughter of Capt. Joseph Smith of Hanson, a veteran of the Civil War, and is survived by her and by a son and daughter. He was

a member of Puritan Lodge, A. F. and A. M., of Whitman; Pilgrim Royal Arch Chapter and Old Colony Commandery, Knights Templar, of Abington; North River Lodge, I. O. O. F., of Hanover, and also a member of the Hatherly Medical Club.

DR. EVERETT THORNTON NEALEY, of Bangor, Maine, died in Grace Hospital in that city, November 26, 1922, of pernicious anemia and nephritis, at the age of sixty-four. He was a graduate of Bowdoin Medical School in 1883, was a member of the Maine Medical Association and the American Medical Association. He had served on the staff of the Eastern Maine General Hospital and was physician to the Bangor and Arrostook Railroad, and for many years county medical examiner. He was one of the first physicians in the city to take up x-ray work. His widow, who was Helen Coombs, and two sons survive him.

DR. CHARLES HERMAN MILLER died at his home in Ashmont, Dorchester, November 23, 1922, at the age of 59. He was a graduate of New York University Medical College in 1891, a member of the American Medical Association and the Massachusetts Medical Society, making a specialty of otology, laryngology and rhinology.

Correspondence.

CANCER WEEK.

(From Our Maine Correspondent.)

Mr. Editor:

The State of Maine during the past two years has instituted and carried on a very active and aggressive campaign for the control of cancer, and it may be of some value for those interested in this subject in other States to know some of the details of Maine's plan of campaign and to learn how practically every adult in a State made up largely of scattered rural communities has had the essential and hopeful facts about cancer placed before him in these two years.

Cancer control work is under the joint supervision of the Maine Medical Association, with a committee of three, and the Maine Public Health Association, with a very much diversified committee of nine; this committee being represented by the secretary of the State Federation of Labor, the State Commissioner of Health, the president of the State Federation of Women's Clubs, the secretary of the Maine Graduate Nurses' Association, the head of the Maine State Grange, and the executive secretary of the Maine Public Health Association, besides the three members of the State Medical Association's committee, the chairmanship of both committees residing in the same man.

In addition to these two very active committees, a county chairman has been appointed in each county of the State to carry on the work with the aid of a sub-committee in each individual county.

Maine is a State of few large cities and, in order to solve the problem of furnishing adequate speakers on this important subject, to avoid the necessity of a few able speakers giving up much time and traveling long distances to cover a wide field, and also in order to provide information which should be uniform in character and voice the consensus of opinion of many authorities on the subject rather than giving the chance for the expression of the more limited opinion of any one man, the committee prepared a carefully worded, non-technical, standard lecture which was sent to every physician in the State together with a letter stating the object of the campaign, the manner in which it was desired to place this lecture before audiences, and asking for co-operation.

The response to this scheme was most gratifying. Many physicians who would hesitate to prepare a talk themselves willingly read the standard lecture many times before numerous audiences, both during the National Cancer Week and throughout the winter. This scheme solved a large problem in this State.

And, further, in order that the physician might be spared the necessity of seeking an audience himself, the heads of the State Federation of Labor, State Grange, State Federation of Women's Clubs, State Nurses' Association, and many other social, church, and fraternal organizations, were asked to notify their various sub-divisions of the nation-wide educational campaign and to request that a special meeting be arranged at which some local physician should be asked to read the standard lecture.

Our committee received immediate and most enthusiastic and efficient response to this appeal, and so thoroughly was this scheme carried out throughout the whole State that we are most gratified to learn that a large percentage of the adult population of the State was reached in this way.

In addition to what the doctors have done themselves, in many sections of the State the doctors' wives, after being properly coached in the matter of answering questions which might arise regarding the lecture matter, have gone before small groups in the churches, normal schools, etc., and read the lecture, thus increasing the number of people reached.

Another feature of the campaign which was of distinct value was the distribution by means of the rural free delivery of carefully prepared literature to those in the more remote rural districts and outlying farm areas who could not be reached by the lecture system. Copies of this literature were translated into French and distributed to the large French population in many communities.

In this way, through the efficiency of committees representing widely diversified groups of people, and the hearty co-operation of the medical profession of the State practically as a whole, a vastly greater number of people have had the vital facts about cancer placed before them than probably could have been done in any other way in a State of this kind.

One or more papers on the general subject of malignant disease have been read before each county medical society and a lecture or talk has been given to every nurse in training in every public and private hospital throughout the State, thus rounding out the proposed plan to reach every possible group of people.

This scheme was inaugurated and well under way before the National Cancer Week, it was intensified during this week, and it is proposed to carry it on without a let-up throughout the entire winter as was done last year. It is believed that a campaign of this order should be pushed with as much vigor and over as long a period as that against tuberculosis in order to accomplish the desired result, but it is quite evident that even the effort so far made has brought about small, but nevertheless very unmistakable, results as evidenced by the awakened interest in the subject shown by the medical profession throughout the State and by the increasing number of people seeking advice about conditions about which they are uncertain.

It is believed even further that the time has already arrived when efforts for prophylaxis against cancer should be systematically made, and it has been proposed by the chairman of the cancer control committee that "observation clinics" be established in the three larger hospitals of the State to which the profession can send doubtful cases for diagnosis, in which the inoperable case can receive proper x-ray or radium palliative treatment, and in which as large a number of patients as possible, especially women, shall be kept under observation

for a period of five to ten years in order to detect the possible early onset of malignancy or the treatment of definitely pre-cancerous conditions. Such a clinic can be run as an out-patient clinic and, if cases are properly catalogued and an adequate follow-up system instituted, there should be no difficulty in following cases and obtaining valuable results along the line of prophylaxis.

The health authorities of the State of Maine are trying to teach its people that the seeking of early advice from competent authorities in all matters of bodily abnormalities is the surest road to health and happiness and a long and useful life.

EDW. H. RISLEY, M.D.

Waterville, Me.

INFECTIOUS JAUNDICE.

New Haven, Conn., Nov. 24, 1922.

Mr. Editor:

The undersigned is desirous of obtaining information regarding the prevalence of Infectious Jaundice in your State.

The disease is non-reportable and information regarding its prevalence cannot therefore be obtained from Boards of Health.

I shall be grateful for any reports of outbreaks which your readers may care to send me.

GEORGE BLUMER, M.D.

[NOTE: In the interest of scientific medicine practitioners should unite with students of medical problems and forward information to those who are studying any form of disease. Massachusetts physicians should give all possible assistance to Dr. Blumer.—Editor.]

THE SCHOOL INSPECTION AND THE FAMILY PHYSICIAN.

Malden, November 24, 1922.

Mr. Editor:

With the development of school inspection we hear a good deal about the necessity of co-operation between the school medical personnel and the family physician which is, of course, highly desirable.

Unfortunately, my own experience in this regard has been very deplorable. I presume this was the experience of many practitioners. The school nurse very rarely, to say the least, takes the pains to find out whether the child supposed to be sick has a family physician and to get in touch with him. She usually undertakes to treat the patient herself or refer it to some charitable medical institution, no matter whether the patient is rich or poor.

With such an abnormal state of affairs, I think something must be done to correct this evil. No co-operation can exist between two parties when one is entirely ignored by the other.

Different medical societies ought to act upon it in their respective communities and see that this evil should be corrected.

Respectfully,

LOUIS SILVER.

THE ADDITION TO THE GARDNER STATE COLONY.

Mr. Editor:

Your letter of November 20 to the Department of Mental Diseases has been referred to me for reply.

This institution caring for the insane was developed and is developing with two ideas in mind: The Colony plan with fairly widely detached buildings, and occupation used as means of treatment. At the present moment 85% of our patients are occupied every day. During the early years of the institution cases were admitted only by transfer by the

Department of Mental Diseases, but for the past five years we have been a receiving hospital, receiving cases by voluntary application and by commitment from the community the same way as other state hospitals admit. Our census is now approximately 900, including those 50 in our family care system who are placed out in families.

The new hospital building now under construction is a fire-proof building, two stories and finished basement. The basement will provide an x-ray room, laboratory, dental room, dispensary, diet kitchen, continuous bath treatment room, lecture room for nurses, and various utility rooms. On the first floor are both single rooms and dormitories for medical and surgical cases for women. This provides for thirty-eight on this floor. There is also on this floor a suite for sick employees separate from the rest of the floor. On the second floor is an operating room, sterilizing room, ether and recovery room, observation room for nurses off the operating room. This floor will care for thirty-eight medical and surgical cases. Our consulting surgeon is A. F. Lowell, M. D., of Gardner, Mass. Plans for this building can be seen at the office of Curtis W. Bixby, Architect, 8 Beacon St., Boston, Mass.

We have also under construction this year, by our own labor, a new laundry building which will care for 1500 patients and employees. We are also constructing a subway to connect all of our main buildings, the total cost of which, when properly equipped, will be \$1600.

I am sending, under separate cover, a copy of our last annual report.

Very truly yours,

CHAS. E. THOMPSON,
Superintendent.

INTERNATIONAL CONVENTION OF INDIVIDUAL-PSYCHOLOGY.

Brooklyn, November 14, 1922.

Mr. Editor:

I have been authorized to inform you that an International Convention of Individual-Psychology will be held in Munich (Germany), on December 8, 9 and 10.

The program of the first day consists of a discussion of "Individual Psychology and a general outlook of the happenings in the world." (Individual-Psychologie und Weltanschauung.)

Then Dr. Alfred Adler of Vienna will deliver a very interesting lecture.

Also Professor Dr. D. E. Oppenheim of Vienna is going to speak of "Shakespeare's Knowledge of Human Nature."

Dr. Sumpf, Munich (Germany), Kaulbachstrasse 75/3, will be glad to answer any questions that anybody may have in regard to the convention and will make all reservations for those who plan to attend.

If you want further information about the Individual-Psychology I am in a position to obtain the work of one of America's famous professors on this subject.

I would thank you to take note of the above and remain,

Very truly yours,

(Signed) RICHARD KRAUSS,
c/o MR. ALEX. MARTINEK,
6813 4th Ave., Brooklyn, N. Y.

NEW ENGLAND DERMATOLOGICAL SOCIETY.

The regular quarterly meeting of the New England Dermatological Society will be held at the Boston City Hospital, in the Surgical Amphitheatre, on December 13, 1922, at three thirty p.m. All physicians who are interested are invited to attend.

HIC JACET.

In golden pre-Vesalian days
The barbers cut for stone,
And to the wondering yokels' gaze
A pebble (palmed) was shown.

Then simples, leaves, and herbs were brewed
And incantations spelled,
And by the force of magic rude
Black devils were expelled.

The ages with their noiseless tread
Moved silently along,
And some were purged and some were bled
Both copiously and long.

Then to the much enduring world
Came an enlightened day—
The bloody Moloch's flag was furled—
The cultists held their sway.

As water rushes from the spout
Our flood of knowledge grew,
And old ideas took hasty rout
Besieged by the new.

And still man's wisdom grew apace
As modern history shows—
Metallic tractors joined the race
And Mother Eddy rose.

Then maladjustments held the floor,
But there—enough's been said;
Why flaunt the vivid flag before
The angry Holstein's head?

Amid the fair Elysian fields
The gentle Coné roams;
To mild persuasion cancer yields;
Health broods above our homes.

Now Science truly has the laugh
On all that Hell can send,
For Father Abrams holds the staff—
And "Finis" can be penned.

Joo.

MORTALITY IN MASSACHUSETTS.

Mortality from the following causes in Massachusetts for the first six months of 1922, from statistics compiled by the Registrar of Vital Statistics:

Typhoid fever	25
Measles	101
Scarlet fever	103
Whooping cough	103
Diphtheria and croup	276
Influenza	487
Poliomyelitis	5
Tuberculosis of the lung	1740
All other forms of tuberculosis	313

(2053—105.2 annual rate per 100,000 population.)

Cancer 2334 |

(119.6 annual rate per 100,000 population.)

Alcoholism	104
Meningitis	125
Cerebral hemorrhage	2305
Pericarditis, acute endocarditis and myocar-	
ditis, angina pectoris, other diseases of the	
heart	4741

(243.0 annual rate per 100,000 population.)

Bronchopneumonia	2017
Pneumonia	1608
Diarrhea and enteritis (under two years)	324
Puerperal fever	94
Other puerperal affections	239
Congenital debility and malformations	1882
Violent deaths (excluding suicide, homicide, and	
automobile accidents)	958
Automobile accidents and injuries	198

Suicide	234
Homicide	50

These rates are based on an estimated population, 3,902,576, as of July 1, 1922.

BOARD OF REGISTRATION IN MEDICINE.

EXAMINATION HELD SEPT. 12, 13, 14, 1922.

Applicants Examined	57
Applicants Registered	28
Applicants Rejected	29
Detail of College of Graduation as follows:	
Middlesex College of Med. & Surg.	13
St. Louis Coll. Phys. & Surg.	7
Tufts College Medical School	6
Mass. College of Osteopathy	5
Phys. & Surg., Boston	3
Harvard Medical School	3
University of Vermont	2
Chicago Coll. Osteopathy	2
Imperial Ottoman	1
Kansas City Phys. & Surg.	1
Bowdoin	1
Johns Hopkins	1
Woman's Med. Coll. of Pa.	1
Hahnemann, Pa.	1
Washington Univ., St. Louis	1
Boston Univ. School of Medicine	1
Yale Medical College	1
Univ. West Tennessee	1
Univ. Naples	1
Laval	1
Kansas City Univ.	1
Univ. of Kansas	1
Phys. & Surg., Baltimore	1
Chicago Coll. Medicine & Surgery	1

Total

The College of Graduation of rejected applicants is as follows:

Middlesex Coll. Medicine & Surgery	8
St. Louis Coll. Phys. & Surg.	5
Mass. College of Osteopathy	4
Phys. & Surg., Boston	2
Tufts College Medical School	2
Imperial Ottoman	1
Kansas City Phys. & Surg.	1
Washington Univ., St. Louis	1
Univ. West Tennessee	1
University Naples	1
Laval	1
Kansas City University	1
Phys. & Surg., Baltimore	1

Total

DISEASES REPORTED TO MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING NOVEMBER 18, 1922.

Disease.	Cases.	Disease.	Cases.
Anterior poliomyelitis	4	Ophthalmia neonatorum	14
Anthrax	1	Pellagra	1
Chicken-pox	201	Pneumonia, lobar	132
Diphtheria	374	Scarlet fever	207
Dog-bite requiring anti-rabic treatment	8	Septic sore throat	4
Encephalitis lethargica	2	Smallpox	1
Epidemic cerebrospinal meningitis	5	Syphilis	54
German measles	2	Suppurative conjunctivitis	12
Gonorrhea	144	Trachoma	5
Influenza	10	Tuberculosis, pulmonary	139
Measles	321	Tuberculosis, other forms	29
Mumps	121	Typhoid	25
		Whooping cough	297

DISEASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Week Ending November 25, 1922.

<i>Disease.</i>	<i>No. of Cases.</i>	<i>Disease.</i>	<i>No. of Cases.</i>
Anterior poliomyelitis	2	Pneumonia, lobar	132
Chicken-pox	47	Scarlet fever	230
Diphtheria	305	Septic sore throat	2
Dog-bite requiring anti-rabic treatment	8	Syphilis	39
Encephalitis lethargica	1	Suppurative conjunc- tivitis	2
Epidemic cerebrospi- nal meningitis	4	Trachoma	2
German measles	8	Tuberculosis, pulmo- nary	135
Gonorrhea	77	Tuberculosis, other	
Influenza	18	forms	16
Measles	338	Typhoid	18
Mumps	118	Whooping cough	263
Ophthalmia neonato- rum	17		

THE NATIONAL BOARD OF MEDICAL EXAMINERS announces the following dates for its next examinations: Part 1: February 12, 13 and 14, 1923. Part 11: February 15 and 16, 1923.

The fees for these examinations have been continued at the reduced rate for another year. Applications for these examinations must be forwarded not later than January 1, 1923. Application blanks and circulars of information may be obtained from the Secretary of the National Board, Dr. J. S. Rodman, Medical Arts Building, Philadelphia, Pa.

J. S. RODMAN, Secretary.

INSPECTOR, ANTINARCOTIC ACT. AGENT, ANTINARCOTIC ACT.

The United States Civil Service Commission announces open competitive examinations for the positions listed above. Receipt of applications to close December 31, 1922. Vacancies in the Internal Revenue Service of the Treasury Department, at the salaries indicated below, and in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from these examinations, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The entrance salaries for both inspectors and agents will range from \$1,800 to \$2,250 a year (plus "bonus"), with allowance for subsistence and actual necessary traveling expenses when away from post of duty on official business.

TRANSPORTATION TO SAN FRANCISCO NEXT JUNE.

The American Medical Association will hold its next annual session in San Francisco, June 25 to 30, 1923. Dr. Wendell C. Phillips, of 40 West 47th Street, New York, one of the trustees, is organizing a committee from the Eastern States to arrange for transportation to and from that meeting. He will be glad of the views of the Fellows of the Massachusetts Medical Society as to the sort of tours that would find most favor.

(signed) Walter L. Burrage, Secretary.
November 27, 1922.

Boston City Hospital. Staff Clinical Meeting, Cheever Surgical Amphitheatre, Thursday, December 14, 1922, at 8 p.m. Myocarditis, Francis W. Peabody; Mediastinal Tumors, Henry Jackson, Jr.; Spastic and Atonic Constipation, Percy B. Davidson. Open discussion. Physicians and surgeons invited. Refreshments served 9.30 p.m. JOHN J. DOWLING, Superintendent.

SOCIETY MEETINGS. DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barretable District.—Hyannis.—February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol South District.—Fall River.—May 3, 1923.

Essex North District.—Haverhill, (Semi-Annual Meeting)—January 8, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Essex South District Medical Society meets Wednesday, December 13th, at Beverly Hospital, Beverly, 6 p.m. Speakers: Dr. W. P. Bowen, Managing Editor *Boston Medical and Surgical Journal*; Dr. John D. Adams, Boston; Dr. P. P. Johnson, Beverly. R. E. Stone, Secretary.

Suffolk District.—December 27, 1922; January 31, 1923; February 28, 1923; March 28, 1923; Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District.—Meeting, Wednesday, January 31, 1923.

Middlesex East District.—Jan. 24, 1923. The Nursing Problem. Speaker to be announced later.

March 21, 1923. Mental Factors in Childhood. Paper by Dr. William Healy.

April 18, 1923. Interpretation of Laboratory Findings. Papers by Dr. E. G. Crabtree and one to be announced later.
May 9, 1923. Annual Meeting.

All meetings except the annual meeting will be held at the Harvard Club in Boston. A. E. Small, Secretary.

Worcester District Meetings are scheduled as follows:

December 13, 1922.—The meeting will be held in the G. A. R. Hall, Pearl Street. Programme: "Prostatectomy." Dr. J. D. Barney of Boston; "Anomalies of the Kidney," Dr. Walter D. Heberich; "A Series of Interesting Pyelograms in Genito-Urinary Lesions," Dr. Philip H. Cook.

January 10, 1923.—The meeting will be held at the Worcester State Hospital, Belmont Street, at 4.15 p.m. Programme: "A Discussion of Status Thymico-Lymphaticus and the Inherent Compensatory Possibilities," Dr. Walter Timme, New York City. Discussion will be opened by Dr. W. A. Bryan.

February 14, 1923.—The meeting will be held at the Worcester City Hospital at 4.15 p.m. The programme will consist of a series of papers by members of the staff.

March 14, 1923.—The meeting will be held at St. Vincent's Hospital at 8.15 p.m. The programme will consist of a series of papers by members of the staff.

April 11, 1923.—The meeting will be held at Memorial Hospital at 8.15 p.m., and the programme will consist of a series of papers by members of the staff.

May 9, 1923.—Annual meeting and banquet.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

December, 1922.—New England Dermatological Society Meeting, Wednesday, December 13, 1922, at 3.30 p. m., in the Surgical Amphitheatre, Boston City Hospital; C. Guy Lane, Secretary.

December 25-30, 1922.—American Association for Advancement of Science meets in Boston.

December, 1922.—Boston Medical History Club will meet December 18, 1922.

January, 1923.—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston; W. H. Allen, Mansfield, Mass., Secretary.

January, 1923.—Boston Association of Cardiac Clinics. Meeting January 18, 1923, at 8.15 p.m. Boston Lying-In Hospital (New Hospital). Subject: Pregnancy and Heart Disease.

January, 1923.—Boston Medical History Club will meet January 15, 1923.

February, 1923.—New England Dermatological Society Meeting, February 14, 1923, at 3.30 p. m., in the Skin Out-Patient Department, Massachusetts General Hospital; C. Guy Lane, Secretary.

February, 1923.—Boston Medical History Club will meet the third Monday of this month.

March, 1923.—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary.

March, 1923.—Boston Association of Cardiac Clinics. Meeting March 15, 1923, at 8.15 p.m. Boston City Hospital. Subject: Prevention and Relief of Heart Failure.

March, 1923.—Boston Medical History Club will meet the third Monday of this month.

April, 1923.—New England Dermatological Society Meeting, April 11, 1923, at 3.30 p. m., in the Surgical Amphitheatre, Boston City Hospital; C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston; W. H. Allen, Mansfield, Mass., Secretary.

April, 1923.—Boston Medical History Club will meet the third Monday of this month.

May, 1923.—Massachusetts Society of Examining Physicians (date and place undecided). American Pediatric Society Meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind.; H. C. Carpenter, Secretary.

May, 1923.—Boston Association of Cardiac Clinics. Meeting May 17, 1923, at 8.15 p.m. Children's Hospital. Subject: Rheumatism and Chorea and Heart Disease.

June, 1923.—American Medical Association, San Francisco, June 25-29, 1923; Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923.—Massachusetts Association of Boards of Health, July 26, Nantasket; W. H. Allen, Mansfield, Mass., Secretary.

*Deceased September 2, 1922.

The Boston Medical and Surgical Journal

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Original Articles.

THE MENTAL HYGIENE CAMPAIGN AS SEEN BY AN OUTSIDE OBSERVER.

BY BRONSON CROTHERS, M.D., BOSTON.

THE National Committee for Mental Hygiene is conducting a campaign which should arouse the active interest of the whole medical profession. The enormous importance of the problems involved has been brought home to a considerable portion of the public, whose interest was shown in crowded meetings during the most inclement part of last winter. Doctors are not entitled to an attitude of detached interest or of indifferent acquiescence. A public health movement of great importance is under way and it is the plain duty of physicians to formulate a definite opinion.

The evidence upon which such an opinion can be based is readily available. The Committee has published for about six years a quarterly magazine, *Mental Hygiene*, in which original articles are supplemented by admirable reviews and abstracts. With the files of this journal as a starting point it is possible to select essential collateral reading without going too deeply into technical psychiatric and psychologic literature.

Any attempt to record the result of such a survey of the Mental Hygiene movement as a

collective abstract would be sterile, as the fields covered include practically every activity of human life. It is an interesting exercise, however, to attempt to formulate an individual reaction to such a series of fascinating stimuli. Naturally such a method of review is open to all sorts of objections. Of course, the result represents merely a point of view, dependent on prejudice, selection and various other unscientific foundations, but it has certain merits, which the more conventional collective abstract cannot have.

The challenge to the medical profession is a definite one. Some of the psychiatric and psychologic leaders feel that a very large percentage of all mental disorders, by one speaker placed at 50%, are preventable by technic now available. The tremendous burden of deficiency, delinquency and insanity is hardly realized except by special students of the problem. If physicians are neglecting opportunities for effective treatment, they are thoroughly blameworthy if they do not at once make sure that those influenced by them understand the new possibilities. However, before acknowledging error it is only sensible to subject the whole matter to careful examination.

The active work of the National Committee is obviously under the control of psychiatrists and psychologists. Further, it is clear that these men represent the best in their fields. Quite naturally, some of them appear not to encour-

age other groups to share the responsibility of leadership. This distrust of other people is clearly formulated in several articles. When leadership in a movement is so limited and so jealously guarded it is entirely proper to search for reasons.

Obviously if Mental Hygiene is a pure science the control must rest with the originators and the practitioners of the science. That it is a distinct science is stated by Dr. L. F. Barker in the Presidential address at the tenth anniversary of the Committee. Under such circumstances it is open to the rest of us to take it or leave it, but it is impertinent to try to break into any active participation in its direction, unless we are asked.

But apparently there is no general agreement that Mental Hygiene is a separate and pure science. Many active members of the Committee regard it rather as an attempt to co-ordinate every effort being made for better mental life. Under such a definition every one of us who is interested in education, religion, politics or medicine, is, according to our lights, a mental hygienist. From this point of view we have rights in the selection of leaders. If the psychiatrists and the psychologists as a class show themselves wiser and more resourceful in dealing with the problems of the human mind than other men, we may look to them as chosen and not as self-appointed leaders.

As far as I am concerned, I cannot take seriously Mental Hygiene as a new science and I shall consider it as an attempt at correlating all the various activities aiming at better conditions and at formulating a plan of action.

From this point of view I at once admit the validity of the psychiatric and psychologic claim to leadership in the treatment and diagnosis of recognized mental disturbance, including deficiency, delinquency and insanity as well as disabling or disturbing neuroses. When I accept this limited leadership it means that I will use what influence I have in support of provision of such diagnostic clinics as may be needed, such psychologic studies as may help in the recognition of feeble-minded in the schools, and whatever psychologic or psychiatric investigation may be of help to the courts. Moreover, as a natural consequence of this attitude, I will try to study patients in such a way as to recognize psychiatric problems. Naturally recognition will lead to efforts at logical treatment or reference to experts in psychiatry or psychology.

However, the literature under review contains much that shows that certain mental hygienists aim at far more than the detection and treatment of mental disorders. Some of them go so far as to include common sense and normal in the quotation marks of doubt and derision. To these gentlemen the field of activity is broadened to include us all. Naturally

they view children as the rough material from which neurotic and badly adjusted adults will develop.

As I see it, the non-psychiatric doctor regards the psychiatrist as a specialist in insanity and the psychologist as an academic seeker after rather obscure data. Such an attitude is entirely unnecessary, but the fault lies with some of the experts as much as with the rest of us. As long as this attitude is maintained everybody will be working at cross purposes.

For my own part, I have got a good deal of satisfaction from a working classification which fits most of the experts of my acquaintance.

By far the biggest group are broad-minded, hard-working people who talk reasonably about the problems that interest them. Their methods are perfectly logical and they claim no immunity from criticism. Naturally such people are able to study personality with great benefit. Where the worst of us dismiss a "nervous child" with routine advice as to rest and discipline and give the mother a prescription for nux vomica and bromides, the wise psychiatrist settles down with every one concerned. His essential technic consists of stimulating listening. He does not "take a history" from the mother, but he finds out what influences have acted on the child, what sort of interests he has, how he plays, what he does in off hours, how he gets along in school. He also, as a part of his study of the child, gets a clear idea of the whole family, the school teacher and the nurse. Much of this information is obtained by carefully trained social workers. The physical examination and perhaps a formal psychological test rule out certain defects.

Then, on the basis of this careful, painstaking procedure he suggests and supervises a course of action. The patient is taught to take an active part in his own cure, instead of being regulated and drugged. Naturally the result depends, largely, on the wisdom of the psychiatrist. On the face of it it is clear that no one capable of utilizing a method so time-consuming is likely to lack patience and he is almost certain to possess wisdom.

Another group, on the whole, I think, less efficient, shut themselves up with their patients and work along purely Freudian lines. The procedure is far more obscure and discussion is curiously difficult. If Dr. Freud and his disciples had not succeeded in making best sellers of medical text books, there would be little to justify amateur discussion of a highly complicated technical procedure. However, I feel that Freudians as mental hygienists have a claim to separate consideration.

A third group, whose procedure is simplicity itself, have assumed a rôle of great prominence. The more extreme advocates of Binet-Simon tests have a conception of life which seems to

me grotesque. If the mental testers of this type really represented psychology I should be entirely willing to get on without psychology, for reasons to be given. The claim to immunity from outside criticism practically eliminates their method from consideration as a part of true mental hygiene. This view is apparently backed up by most psychiatrists and many psychologists who regard intelligence tests as of limited value in certain fields. I shall discuss only the extreme advocates of "mental age." The rest of the psychologists range from them to quiet and useful students.

A fourth nondescript group includes a certain number of scientists whose interests only casually touch clinical medicine or mental hygiene and a large number of enthusiasts who use methods with more than a little suggestion of the occult.

As far as the National Committee is concerned, the strength of the movement lies in the predominance of the sane, vigorous students of human nature who are quite competent to handle the various complicated technical methods of modern psychiatry and psychology. The weakness, if there is any, is the enthusiasm of certain men who are so fascinated by technique that they are willing to attempt to popularize technical methods, which, taken from their place as details of procedure in a wise and patient investigation by experts, are subject to serious misuse. When a speaker suggests that 50% of mental disease is preventable by early attention to "conflicts" the listener may well inspect his evidence and examine his credentials.

Under guidance of the best, what may we expect from Mental Hygiene? In answer, the propagandists point to the anti-tuberculosis movement as an example. This analogy deserves more than casual attention.

The present programme of the various anti-tuberculosis agencies is a perfectly definite one. In the first place the disease, however protean its pathology, is due to a single group of organisms.

The prevention of tuberculosis depends on avoidance of infection or on developing or maintaining resistance. The signs of the disease are recognized, on proper examination, while the malady is still curable. The means of treatment are, to a large degree, well understood.

The leadership of experts is accepted because all of us are able to understand the methods by which they come to conclusions, even though we may be ignorant of details of bacteriology or pathology. Many of the bits of technique carried out by the State or under its supervision. Some of the methods have received the sanction of the law and are enforced by the police.

When we compare this well formulated cam-

paign with the problems confronted by the mental hygienists we see more points of difference than of likeness. For mental disorders may be the result of infection with any one of a number of organisms, of dissatisfaction with environment, of heredity, of accident or of endocrine disturbances—to mention only a few causes.

The prevention of disorders of the mind obviously involves the coöperation of every agency interested in human welfare.

The task of finding a starting point is a hard one. Various methods are possible. The mental expert can focus his attention on recognized mental disorders and try to educate people to regard these disorders as curable diseases, not as disgraces. As soon as this point of view is accepted, earlier diagnosis of psychoses and deficiency, with adequate care for less advanced sufferers, would naturally follow. Or he can approach the subject in a different way and lay stress on the fact that most preventable mental diseases begin in childhood. From this point of view he will regard preventive psychiatry as education in its broadest sense. Obviously he can combine both points of view, but, if he does so, he leaves himself open to challenges as a leader of education, to which, as a therapist, he is not liable.

The present campaign involves all these aspects. The psychiatrists and psychologists who direct the work of the National Committee for Mental Hygiene have challenged not only our methods of dealing with disordered minds but our methods of bringing up children.

Such a challenge can be considered only in sections. I believe it is entirely fair to eliminate any discussion of the treatment of developed disorders of the mind from discussion, not because it is not important, but because I yield absolutely to the authority of experts in these matters.

When it comes to acknowledging the right of these experts to supervision of the life of "normal" children (the quotation marks are the psychiatrist's), I do not feel so diffident.

Parents see more of individual children than any psychiatrist who is not also a parent. Teachers, pediatricians, scout masters, and any number of others see more children than any psychiatrist. On the face of it, the knowledge of children's minds is not confined to any one group.

The wise psychiatrist or psychologist can obviously help a lot. There is no valid reason for supposing that he sets himself up as more than a competent adviser on certain problems of childhood. The trouble is that a few do claim precedence over teachers and other veterans.

The first group of extremists are followers of Sigmund Freud. Over and over, these men denounce almost everyone else as mediaeval and incompetent. They are now trying to popu-

larize Freudian technic. Whatever else they do, they must be causing great agitation at the headquarters of the Committee. Certainly they are causing a variety of emotions among the rest of us. On the whole they add enormously to the gaiety of life as they discuss with pompous and astonishing vocabulary every subject from humor to Lady Macbeth. As the *enfants terribles* of Mental Hygiene they have a striking rôle.

The dilemma in which the Freudian finds himself is an interesting and difficult one. If he confines his efforts to individuals and uses the Freudian technic to help those seeking his personal assistance, he limits his field enormously. A very few patients will absorb all his time and energy. On the other hand, if he attempts to spread the ideas formulated by Freud he lays himself open to most serious dangers.

In order to understand Freud one must study with great attention a most complicated series of theories. Every Freudian warns the novice that misinterpretation at the start is to be expected. In fact, the initial refractory stage, otherwise, I believe, known as "resistance," is one of the strongest arguments for the truth of the theory. Between doctor and patient this resistance can be overcome, but it often takes time. In every case it requires considerable personal study before complete confidence allows utter frankness. The quality of this frankness astonishes almost everyone. It is literally absolute.

The mental hygienist cannot possibly reach the large audience which must be influenced if propaganda is to be effective, by any such methods. Certain writers and speakers, therefore, have attempted a formidable task. They apparently guess at the probable average "resistance" of their audience, and temper their frankness to it. The result appears to be bizarre. The only effect on a certain number is intellectual disgust. Naturally the group who react in this way include many who need help tremendously. They tend to dismiss mental hygiene without a blessing. Another group learn that words, hitherto spurned as obscene, are entirely scientific. This fascinating discovery leads to an absurd misinterpretation of an important technic, as well as to injudicious and persistent conversation of a highly objectionable type. Here and there, doubtless, a student may be urged to follow the difficult road to real understanding.

Such an interpretation may be entirely unfair, but for the last two years I have tried with great earnestness to find a medical student or a layman, not specializing in psychology or psychiatry, who had a working knowledge of the difference between repression and discipline, between fantasy and imagination, between libido and ambition, or between erotism and sensuality.

This general failure to understand a philosophy as difficult as that under discussion seems to me to show that efforts to propagate it by elementary discussions are quite futile. In the mothers of children, half-knowledge of this sort has led, in many cases, to complete lack of faith in everyone having to do with the child.

Certain books which seem to me in the highest degree unfortunate have been published. The entirely false impression they create is obvious. For example, a few years ago von Hug-Hellmuth's "Mental Life of the Child" appeared with an appreciative foreword by its translator, one of the most admirable medical philosophers of the time. Later on this volume was reviewed, with some misgivings, but with considerable approval, in *Mental Hygiene*. I quite realize the unfairness of picking out details, but when within the first few pages one finds that the new-born baby scratches itself, showing masochism, scratches its grandmother, showing sadistic trends of thought, and later enjoys sucking its finger because the smell of the softened skin has an odor suggesting the genitals, it is hard to read dispassionately. For one thing, Sherrington showed us, long ago, far more sadistic or masochistic trends in spinal dogs, who can hardly be supposed to harbor erotic ideas, and Head and Riddoch demonstrated undoubted sexual reflexes in men with complete transections of the spinal cord. Yet reviewers regard this book as valuable, though they naïvely suggest that readers should be able to discount the overemphasis in sex.

More popular volumes written by important and active members of the Committee are full of auto-erotism, mother-complexes and the rest of the Freudian vocabulary.

Without presuming to express any opinion on Freudian technic in its therapeutic aspect, I do feel that it is proper to express a deep distrust for any popular movement which attempts to spread its principles among laymen. For one thing, as far as I know, it is not accompanied by any well-formulated plan for teaching sex hygiene. Without rational sex teaching the emphasis on sex must, I believe, be disturbing without being helpful.

Another conspicuous recent contribution to mental science is the standardized psychological test of intelligence. After wandering for months in the confused fields of Freudian philosophy, conscious all the time that if I only understood I could probably get a flood of light, and feeling restless at being unable to follow language which apparently was plain English, it was delightfully refreshing to get on firm ground again. The problems of human existence were, after all, quite simple. A standard textbook on psychological tests gives the following summary of most of life's problems in terms of intelligence:

"Morality depends on two things: (a) the

ability to foresee and to weigh the possible consequences for self and others of different kinds of behavior; and (b) upon the willingness and capacity to exercise self-restraint. That there are many intelligent criminals is due to the fact that (a) may exist without (b). On the other hand, (b) presupposes (a). In other words, not all criminals are feeble-minded, but all feeble-minded are at least potential criminals. That every feeble-minded woman is a potential prostitute would hardly be denied by anyone. Moral judgment, like business judgment, social judgment, or any other kind of higher thought process, is a function of intelligence."

Having formulated an almost too simple explanation of ethics the author goes on to his methods of classifying intelligence: "The standardized tests have already become and will remain by far the most reliable single method for grading intelligence," and "without question the improved Binet tests will contribute more than all other data combined to the end of enabling us to forecast a child's possibility of future improvement, and this is the information which will aid most in the proper direction of his education."

To be sure, the author makes a few half-hearted reservations, but it is impossible for me to believe that he does not feel that the solution of the problems of life are largely dependent on the Binet-tested intelligence of the American people. However, in one of the dogmatic perorations which make his introductory chapters read like a book of directions on salesmanship, he says: "Binet testing is destined to become universally known and practiced in schools, prisons, reformatories, charity stations, orphan asylums, and even ordinary homes, for the same reason that Babcock testing has become universal in dairying. Each is indispensable to its purpose."

This is a statement I can agree to without much reservation. I know just enough about dairying to understand the value of the Babcock test. This test measures butter fat; it is, therefore, an accurate measure of the commercial value of the milk to the butter-maker, but it bears almost no relation to the value of the milk for other purposes. In fact, no wide-awake Board of Health would admit to sale any milk on the basis of fat content alone. Bacterial counts, methods of distribution and methods of preparation count for vastly more.

I agree that, for the present, the improved Binet test is a very useful short cut to knowledge of intelligence, but that it will keep its position seems, on general principles, uncertain, and that intelligence has any such vital relation to behavior, as is suggested, I doubt. Not that this opinion is of any interest to the author quoted, for he discounts it in advance. He says: "Criticisms of the Binet method have also been frequently voiced, but chiefly by persons who

have had little experience with it, or by those whose scientific training hardly justifies an opinion. It cannot be too strongly emphasized that eminence in law, medicine, education or any other profession does not of itself enable anyone to pass judgment on the validity of a psychological method."

Under such circumstances I prefer to leave the Binet test where its champion has put it: with the Babcock test. At least no dairyman has challenged the right of doctors to judge medical values in his business, and if he did the law tends to recognize the medical opinion.

The quotations are not from a member of the National Committee, but they show a point of view which is too prevalent.

The term "mental age, in my opinion, is exasperating, and it is used over and over in the mental hygiene literature. The words 'mental age' really mean the figure obtained by the Binet test or by some comparable procedure. Before I should be willing to listen seriously to any psychologist as a mental hygienist, I should demand proof that he used some other words. All that the psychologist has a right to mean by mental age is a more or less incomplete judgment of the level of intelligence. If, in his opinion, 'intelligence' covers 'mind,' we ought to know it; if it does not, he is guilty of extraordinary looseness in the use of language—which, I believe, makes him a dangerous propagandist.

Most of the mental hygienists have serious doubts about the validity of the extreme psychological point of view. For instance, Dr. W. A. White, an important member of the National Committee, uses the following words in concluding a plea for a more or less Freudian conception of mental hygiene: "I am minded at this point to compare with the broad behavioristic program that I have indicated, the restricted scheme that is spanned only too often by the Binet-Simon scale. This scale, as devised by its originator, may be a very valuable tool in the hands of a skilled observer, but as the 'be-all and end-all' of child psychology it may become quite as vicious in its results as the fatalism inspired by the false theories of heredity I have already mentioned."

Abundant testimony from psychologists is also available to contradict the conclusions arrived at by the author first quoted. My point is, not that most psychologists are fools, but that we must bear constantly in mind that they are pioneers and enthusiasts. The virtues of the effective pioneer rarely include reticence or understatement. Quite unconsciously the joy of discovery often forces announcement before the finders know exactly what they have found.

At present psychologists are constantly finding new methods. I can see no possible reason for believing that they are in a position to force their adoption. They are a vigorous, stimulating group, but they have no claim to immunity

from criticism. Certainly they criticize each other.

In addition to Freudianism and psychological testing there is a considerable literature on endocrinology, syphilis, heredity and so on. On these subjects doctors can be assumed to possess capacity for adequate judgment.

The followers of Freud and the extreme psychologic testers demand, first, unbounded respect for their knowledge, without criticism by those outside the fold, and second, loyal support of a program based on this respect. Support on any such basis is not demanded as far as I know by any other scientific men. It involves an element of faith, not really arguable. When an engineer presents plans for a bridge to taxpayers his plans are accepted and carried to completion, not because we know anything about the calculations of stresses, etc., but because we feel that if we cared to go into the matter we could check his calculations. In no other way, I believe, can continuous support be obtained, without calling on faith. When the Freudian regards vigorous antagonism as a proof of the validity of his views or the psychologist asserts his immunity to criticism, neither has any logical right to resent lack of interest or flat hostility.

The best of the mental hygienists see this clearly enough. On the whole they base their claim to attention on far more reasonable grounds. They study problems in a thoroughly admirable way. The wisdom and patience of such people as Dr. Healy in Juvenile Court work and Dr. Esther Richards in school and hospital, to mention only examples, show the tremendous amount of solid work that is being done. In neither of these people is there the least trace of blind devotion to technic. On the other hand, it is quite clear that the assets of the ideal mental hygienist consist of patience and wisdom to an almost abnormal degree. If the mental hygiene committee will guarantee a steady supply of such people the rest of us can leave details in their hands. If they propose to impose upon us lecturers on Freud and Binet testers we may well test their personnel, not by laboratory methods, but by such tests as will convince us of their wisdom and common sense.

My own belief is that mental hygiene by highly specialized technic is an inconceivable thing, on any large scale, because I see no reason to suppose that a sufficient number of wise and patient people will devote their lives to psychiatry or psychology to control elaborate technic reasonably.

At this point it is of interest to quote Dr. Adolph Meyer, one of the true leaders of rational mental hygiene. In a presidential address to the American Neurological Association he said,—“There may be a few among us who feel that neurology should maintain its exclusive and dominant attitude by pointing to psychiatry as an extraneous and practically

negligible asylum and sanatorium field, and that what can be handled at large should be handled under a vernacular of general medical and neurologic camouflage, sparing the public's feeling about the mind. Neither the conscience of the profession nor the state of public opinion can drift profitably in this manner. The most practicable step towards the solution of our problem is the rounding off of our training among ourselves and in our general medical curriculums by giving the student and worker good foundations for the simple and everyday tasks of psychology and understanding of ordinary personalities and their problems and needs. Let us realize among ourselves that neuropsychiatry stands for making organized and critical medicine a field of work with personalities as well as with part organs and functions, and that while there must be special workers devoted to special research in the special fields, no physician and no intelligent lay person can afford to disregard the gains by the modern readjustment; the recognition of life problems on the psycho-biologic level of integration, the promotion of a training in medicine dealing with the defective and unusual child, the growth of interest in the minor difficulties of human behavior and mentation and the humanizing of the work with all states and conditions of disease and mal-adaptation.”

Dr. Meyer uses technical words, but a very few hours of reading allows anyone to understand exactly what they mean. He claims leadership, as an acknowledged expert, but he invites interest and discussion. Whether or not we follow him depends on our good sense and our industry. In any case he offers us a clear opportunity for sharing his information and learning his methods without giving up other lines of medical activity. Leadership of this type we can all accept.

The conclusions to be drawn from a review of such varied reading matter cannot be very definite. It is quite obvious that the irritating parts of the programme have demanded an undue portion of attention. However, this much can be stated,—

Mental hygiene, as discussed in authoritative literature, can be divided into two parts. In one are included plans for the earlier diagnosis and proper treatment of mental disorders. The authority of psychiatrists and psychologists to lead physicians in this part of mental hygiene is unquestioned and vigorous coöperation is properly asked.

The preventive side of the work concerns education, in its broadest sense. The upbringing of the next generation is not a matter for specialists alone. Teachers, clergymen, doctors and social workers act as advisers to parents, or act, under proper authority, as their deputies.

The danger, I believe, lies in mixing up these two parts of the programme. One is definite

and demands active support, the other is tentative and demands discussion.

The therapeutic side should be strictly supervised by experts. The preventive side can properly be discussed by anyone who cares to argue.

The weakness of the attitude of some mental hygienists, notably of the extremists among Freudians and mental testers, lies in a perfectly illogical demand for active support based on uncritical acceptance of disputed theories.

The duty of physicians seems to me plain. Mental hygiene is no revelation, it is open to intelligent criticism. Too many laymen regard it as a new faith. As physicians we should watch sympathetically, but critically, and we should guard against the well recognized dangers of enthusiastic and misguided lay application of medical methods.

Fortunately the National Committee has furnished, in accessible form, the literature which needs to be consulted. The examination of this evidence is interesting, profitable and easy. That some of it arouses discussion is inevitable. The National Committee, as a whole, should welcome professional interest. If doctors do not show interest it will be their own fault if they find that charlatans and unscrupulous enthusiasts are capitalizing the interest which the National Committee has aroused.

ILLUSTRATIONS OF DIFFERENTIAL DIAGNOSIS OF SOME TORPID STATES: THE THERAPEUTIC IMPORT.

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THE obtuseness of consciousness is one of the earliest and most alarming phenomena which attracted the attention of students of disease. This is not the place for historical survey of the views regarding consciousness or its loss. For this presentation is to be confined to some aspects of differential diagnosis of some of the causes of impairment of consciousness. It is merely a survey of a few cases the superficial resemblance of which made the differential diagnosis all the more important.

CASE 1.—The first patient was a man of 22, seen at Spartanburg, with Dr. Pike. Three weeks previously there had suddenly occurred a feeling of stress in the eyes as if congested, and this was followed by an excited delirium. From this he had passed into a state of torpor. When I saw him this was less evident, but there was still some clouding of consciousness and slowing of responses and movement, and inability to understand unless remarks were quite simple.

However, physical examination showed absence of left achilles reflex, diminution of the right adductor reflex, a weakness of right internal rectus, an impaired diadochokinesis, slight

jerky tremor in movement, a dull facies, and wide and sluggish pupils. These signs, in conjunction with the rapid onset, the delirium, and the torpidity, pointed to encephalitis as the possible diagnosis. This opinion was confirmed by the further progress of the case, the patient markedly improving.

This case must be contrasted with the young man now presented.

CASE 2.—Here one notes the bent attitude, stooped shoulders, with the head poked forward with a set and staring look, the shortness of the steps in walking, the lack of briskness of movement. Palpation discovers a rigidity of the limbs, trunk, and neck, and the patient complains of pain of the muscles above the shoulder. This state is the sequel of an encephalitis which had been diagnosed as influenza some two years ago, in spite of the extreme lassitude and torpidity of the patient during the attack.

A number of cases of this kind are now being seen by neurologists. In some of them tremor is a marked feature. They present the syndrome produced by lesions in the region of the corpus striatum. Some physiologists believe that in this region the injury falls upon a system which governs the muscle tone, lesions of which produce both rigidity and tremor without preventing voluntary movement, which, however, becomes impaired on account of excess of muscular tension.

The resemblance of this syndrome to Parkinson's disease is very striking. The differential diagnosis is made by the onset of the former occurring after an acute illness, encephalitis, and by its comparatively rapid onset within a few months, while Parkinson's disease comes on insidiously during a period of years. Also, it is very rare except during the decline of life, whereas postencephalitic dystonia may occur before the prime of life, as in this case.

Much misconception has occurred from the use of the name "lethargic," as torpidity is by no means constant in encephalitis. Restlessness, on the contrary, almost always occurs, although it may not show itself for months. Wakefulness may be the predominant symptom and may last for months. Oculomotor paralysis may be absent even though the disease is a diffuse one. The frequency of its occurrence is due to the concentration of the oculomotor cells in nuclei and to the delicacy of their functions, the impairment of which is easily detected. On the contrary, a lesion of equal severity in the centrum ovale may show no focal signs. In some cases the functions are well performed until months after the development of the disease, when a Parkinsonian syndrome may appear, as in the foregoing case.

In the extremely torpid cases, catalepsy may occur, and in that case there may be a temptation to diagnose catatonic dementia precox. Careful neurological study should prevent this error, which the future course of the case will, however, rectify.

One has to differentiate encephalitis from such a case as the following:

CASE 3.—A man of 41 was seen with Dr. Steedly, also at Spartanburg. Four months before he had had an apoplectic attack, blood pressure 198, followed by torpor, headache in the left temple, aphasia, and weakness of the right side. In hospital the blood pressure fell to 140, and he improved, but relapsed three months later, with periods of semiconsciousness. Examination showed an extensor response of the right plantar reflex, absent right abdominal, diminished cremasterics, a weak grip of the right hand, diadochokinesis impaired on both sides, perseveration of movement, possibly some apraxia, substitutory aphasia and poor comprehension, though automatic speech was better than responsive speech, and neither showed dysarthria. The Wassermann reaction was negative and the spinal fluid contained 10 cells per cubic millimeter. There had been strabismus, and there was slight diplopia, but not hemianopsia. The visual fields were not examined at the time. Nothing abnormal could be seen in the optic disks and there was no pupillary deficiency. There was slight facial asymmetry. The most significant feature of the case was that on sitting up there occurred excruciating pain in the left temple, dizziness, and an aggravation of the speech defect. The man, in every way, except in his nervous system, was in the best of health, with a blood pressure never exceeding 140.

In so powerful a man, free of renal disease and hypertension, one had to reject the earlier diagnosis of apoplexy. The severity of the relapse and the lateralization of the physical signs were against a diagnosis of encephalitis in spite of the suddenness of the attack. On account of the one-sidedness of the signs, and their severity, the aphasia, the hemiplegia, the perseveration, and, above all, the localization of a headache, though aggravated by change of posture, the diagnosis made was a neoplasm of the left frontal lobe.

CASE 4.—Another variety of torpidity is exemplified in a woman of 45, seen near Rutherfordton, N. C. because of a coma with delirium which had occurred two weeks after a febrile attack with pain in the chest. She had lost appetite for a considerable time and had been severely constipated and had emaciated greatly. Examination found equal reflexes, reacting pupils, normal sensibility, dragging movements, and a lucid though very sluggish mind. The skin was rough and dry, and there was a branlike eruption on the back of the wrists; the tongue was scarcely red, but on inquiry the family doctor said he had remarked its extreme redness two weeks before. Inquiry showed that there had been a great lack of variety in her food for the preceding six months; it consisting almost entirely of grits and molasses, as she did not care for meat, and green vegetables were almost unobtainable. The absence of neurological signs in a case of acute onset, and the quality of the torpidity, quite unlike that seen in encephalitis, caused a rejection of that diagnosis, while the red tongue, the rapid emaciation, the eruption on the wrists and the history of dietary deficiency led to the diagnosis of pellagra, in spite of the absence of diarrhea.

OBTUSION FROM TOXICOSIS.

CASE 5.—*Post-Influenzal Confusion with Exhaustion*.—In May, 1915, a judge, aged 64, after a severe attack of influenza, remained very weak, confused in mind, and began to develop hallucinations and delusions of a vague character. Several consultants were seen without result, and he became weaker and less clear mentally. The patient was in a typical condition of mental confusion. Deep reflexes were

very faint, abdominal reflexes were absent, there was plantar flexion. There was no paralysis and no anesthesia, so far as could be ascertained. The optic disk was not edematous and showed no arteriosclerosis, but the superficial vessels had thickened coats, though the heart was small, the apex reaching only to the lower border of the fourth rib, one inch inside the nipple line. Systolic blood pressure was 102, the diastolic 60. The kidney function had been ascertained by Dr. A. H. Hoot to be normal, phthalate appearing in ten minutes, to the amount of 30 per cent. and 34 per cent. in the first and second hour, respectively. But there was a large quantity of indican and a slight trace of albumin.

The patient was taking the following diet and medication: 2 A. M., beef juice; 3.30, ammonia; 4, red solution potassium iodide; 5.30, grapefruit juice; 6.15, three tablets, egg, whiskey, milk; 7.30, ten drops adrenalin solution; 8, ten drops solution iodide of potassium; 10.20, soft toast, coffee; 11.15, three tablets—caffeine, strychnine, spartein; 12, ten drops B. P.; 12.30, ten drops solution; 1.30, beef tea; 2.30, ammonia; 3.30, three tablets; 4, custard, cream; 4.30, ten drops B. P.; 4.45, ammonia; 5, ten drops solution; 7, egg, whiskey, milk.

I consider this a case of acute exhaustion psychosis, partly toxic in character. The treatment prescribed was embodied in the following report to his physician:

As the patient is suffering from exhaustion, stimulants are contraindicated as the tired organ is incapable of further response to them; therefore, I think it wise to omit caffeine, the secondary effects of which increase the exhaustion.

Strychnine should not be further given either; for it merely increases the discharge that is the exhaustion of energy of medullary neurones.

Sparteine is a nerve-muscle poison, the effect of which in improving cardiac activity cannot be maintained for long without greater nutritional capacity by this patient.

It is true that an occasional case of paresis very rarely has as low a lymphocytosis; but never during an acute attack of the period simulated by this patient.

I see no advantage in the iodide of potassium. Furthermore, the basic element of this is a strong cardiac depressant. Nor should I give the bromides during the effort to build up the patient, as they diminish metabolic processes and diminish resistance. Ammonia should be kept for emergencies only, as its effect is evanescent.

The régime I prescribe is as follows: 6 A.M., five grains of sodium bicarbonate in four ounces of hot water; 6.15, one orange; 6.30 breakfast, cereal and milk, one egg, crisp bacon; 8.30, massage, consisting of slow, deep pressure without friction; the purpose of this is to increase the *vis a tergo* of the circulation and thus aid the heart by saving its *vis a fronte*. Sleep if possible.

On waking, about 9.30, five grains sodium bicarbonate in four ounces of water; 10 to 10.30, lunch—one banana, cereal, and milk; 12 to 12.30, massage, sleep; 2 to 2.30, dinner, meat and potatoes, green vegetables; 4.30, massage, followed

by five grains sodium bicarbonate in four ounces water; 6.30, supper—unpolished rice and milk, one banana. Between that and midnight, massage again when the patient is awake. For midnight lunch, Graham crackers and milk are desirable. The quantity of milk at one meal should not exceed five ounces. After meals the patient should be given one capsule of "phytin," an organic phosphorus preparation of the Society of Chemical Industry of Basle.

Beef-tea and gelatin should be omitted as containing too much excrementitious materials, which are cardiac poisons. Coffee and tea should be omitted also. A small piece of bread, with or without butter, may be taken with each meal if desired. Water should be the drink, and should be given about one hour before each meal, but should not be restricted to that time if the patient desires it at any other.

The adrenal principle should be continued; and I think it is better given as the dried gland, say three tablets a day to start with. I think that its effect might be improved by being taken along with 1 tabloid of "hormotone."

If this diet is found to be too heavy, diminish the quantities at the commencement. If the patient suffers from the heat, cool sponging should be beneficial; and in any case its effect upon the innervation of the vascular system is usually most beneficial; the water should be used lukewarm. The best cereals to give are puffed grains, with an occasional change to oatmeal and the brown prepared wheats, such as Ralston's. If the patient should desire any one article of food, let him have it occasionally.

When these measures were carried out, improvement was rapid; so that in four weeks the patient was able to be about, and the following term took his place on the bench, and remains well at this time, seven years later.

CASE 6.—Marked Confusion Due to Metabolic Misgrain Resembling Petit Mal.—A bacteriologist, aged thirty, was referred to the writer in the spring of 1912, because of attacks he called "bilious" (but not preceded or accompanied by constipation), which produced headache, preceded by numbness and pricking in the fingers, followed by dizziness, mental confusion, and foolish talk of paraphasic type, without loss of consciousness. These attacks had occurred every two or three months since the age of twenty-two; they were of short duration; there were no scotomata, but they were formerly accompanied by vomiting. The headache was of the splitting kind, lasted all day, and was followed by dullness and slowness of thought the day following. The capacity to concentrate his thoughts was increasingly impaired even between the attacks. He was at times irritable. He had no bad habits, and apart from these attacks he was well and strong. He received a blow on the side of the head when a boy, and there was still a dent in the left parietal region, upon which side the headache most often occurred. He had a large appetite, which he said he controlled, but he ate meat thrice a day, although, he said, sparingly. The blood pressure was not raised, and reflexes and sensibility were normal.

Treatment and Progress.—He was given the "low-protein standard" diet. He wrote me the following winter: "Since I have reduced the amount of protein in my diet and increased the quantity of

vegetables, I have had no recurrence of these spells." His physician informed me that he remained well over three years later.

ENDOCRINE TYPES OF TORPIDITY.

CASE 7.—Hypoadrenia.—Some years ago a mechanic of 48 was seen with Dr. W. Carr, Jr. He was quite unable to work, because of extreme depression, slowness of thinking, and finally a state of torpidity from which he could scarcely arouse himself. Examination showed loss of weight, sluggishness of reflexes, slowness of movement, and difficulty of cerebration, along with a very sad feeling tone. The pulse was slow, and the blood pressure below 90. The clinical picture was typical of hypoadrenia, and the diagnosis was confirmed by recovery within a week by attention to general hygiene and the giving of adrenal substance.

CASE 8.—Pre-Adolescent Hypopituitarism.—A girl, aged eleven years, was brought by her mother, a doctor's wife, because of loss of interest in her lessons, of which she had previously been very fond; grimacing of the face in spite of all correction; equivocation and fibbing in attempts to evade her duties; and greediness amounting to gluttony. She had always been a stout child, but had become enormously so during the preceding year or two. Exploration of a possible psychological cause for this change of behavior was fruitless; so psychomotor exercises were begun for the facial ties. The only effect of these was to arouse the patient's resentment, and they were not continued. Some time after, great somnolence manifested itself, the child becoming very lethargic and even dropping off to sleep in the middle of a task or at the table for a few minutes. This directed attention to the function of the pituitary gland; so this was immediately explored by the levulose test. As this showed great increase of the tolerance of the system to large amounts of sugar, 300 grammes, it was decided that the pituitary gland was functioning insufficiently; great increase of weight, torpor, psychic inadequacy, and its attendant changes in behavior being symptoms of lack of pituitary secretion. Feeding with increasing doses of pituitary gland was at once begun.

The child recovered completely in a few months, and after the onset of puberty was able to dispense with the pituitary gland, and now 10 years later, is active and comparatively thin.

CASE 9.—Hypothyroid Torpor.—A case mentally even more sluggish was seen in a woman of 50, but in contrast to the preceding example she had gained 30 lbs. in weight in the course of a few months, the voice had become coarse and rough, there had been progressive and constant loss of hair, the eyebrows had become scanty, the urine less abundant, and she showed the characteristic thickening at the base of the neck, low temperature, slow pulse, and rough skin of hypothyroidism—a diagnosis confirmed by her rapid recovery when thyroid substance was given her by the mouth.

PSYCHOGENETIC OTTUSION.

The torpid state has been observed as a reaction to an over-difficult situation. Thus one of my friends, an eminent inventor, who keeps up a private laboratory for his amusement, finds that whenever he fails to solve a problem upon which he has been working for some hours he is not only disappointed but has an irresistible inclination to sleep, which he indulges, although it can be overcome with a powerful stimulus.

Again, a young lad of my acquaintance when faced with something which he finds unpleasant

feels himself overcome with a species of lassitude and complains of being very tired. This state is very easily dissipated by either changing the mental attitude toward his task, or by permitting him to do something else. In some instances, however, lassitude will persist for a considerable time.

THERAPEUTIC IMPORT.

Although curious and interesting, relation of these cases would have little practical import for healing of the sick did differential diagnosis not provide an avenue to treatment of each case leading to improvement and recovery. Thus, the case of acute encephalitis was spared the risks of exploratory craniotomy, avoided an unnecessary saturation with antiluetics, and he was spared the expense of a rich diet.

The patient with post-encephalitic dystonia is saved from wasting his money upon useless manipulations whether they call themselves chiropractic or not, and is spared the annoyance and expense of being bled in a vain hope of relaxing his over-tight muscles.

The patient with a tumor of the frontal lobe is relieved by an operation upon the skull; he, too, is spared the infliction of mercury and arsenicals.

The woman with pellagra escapes the madhouse, useless medication, futile exploratory operation, and is quickly restored by appropriate diet.

The young girl with pituitary disease is spared the stigma of a perverse character, the trying discipline of psychomotor reëducation, and the murdering of the digestive organs by so-called tonics. She was soon restored to effective living by proper opotherapy.

The man who at first sight seems a wreck of his former self is spared the all too commonly imposed trip to Florida, a long stay in a sanatorium, or a life of permanent invalidism. He, too, is quickly restored to effectiveness by proper opotherapy.

The woman who has become a burden to her household, and whose illness is compelling her family to face an entire readjustment of their lives, is restored to her former effectiveness as director of her household and companion of her husband and children, but only after the nature of her trouble is ascertained to be due to a mere deficiency of thyroid secretions.

Of the torpid conditions ensuing upon psychic causes, of which an example would take too long to relate completely enough, the therapeutic import of a correct diagnosis is just as great; for it is especially to these patients that have been misdirected so often medicinal and physical measures without efficacy in such cases. Strychnine, forced feeding, rest, change of scene, douches, massage, treatment by cults—all fail to reach the source of the disturbance. The inertia of cases of this kind can be quickly and infallibly removed, by proper psychic means, and by them only. For if other means, in some few cases,

seem efficacious, it is only because of the psychic accompaniments which some of them sometimes contain, and which may accidentally happen to fit the particular case; whereas intelligent psychotherapy ascertains and measures the situation and then meets it with a sure hand.

Most gratifying of all, the distress and ineffectiveness due to psychic disadaptations are permanently relieved by the rectification of the patient's mental attitude and accompanying emotion, with a success nearly invariable where proper means are used.

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CONGENITAL MALFORMATION OF THE INTESTINE — ATRESIA AND IMPERFORATE ANUS.

A REPORT OF TWENTY-SEVEN CASES.

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[From the Pathological Laboratory of the Peter Bent Brigham Hospital, Boston, Mass.]

Congenital malformation of the intestine, although not by any means a common defect, is of sufficient importance to warrant the attention not only of the practising physician, but of the laity as well.

Recently while assisting Dr. Wolbach in autopsies at the Children's Hospital, Boston, two cases of malformation of the intestine were encountered in a single week. The similarity of sex, nature of defect and operation, and the fact that both died on the fourth day, led to my studies of this particular form of defect; with the result, I was able to collect twenty-five unpublished cases from the Warren Anatomical Museum of the Harvard Medical School.

In view of the fact that text books on diseases of children, obstetrics, and systems of surgery mention the condition from their respective points of interest, it is the object of the writer not merely to place these cases on record, but to include in this study such available information, other than those that are obvious at birth, that may be of interest on the subject.

I am indebted to Dr. Stone of the Surgical Service of the Children's Hospital for the clinical data on the first four cases; and to the Warren Anatomical Museum for allowing me to use the specimens and records; also to Dr. Wolbach for the assistance he gave me in the preparation of these cases.

REPORT OF CASES.

CASE 1.—A-21-19.

Clinical Data: Baby L., male, age 2 days, was admitted to the Children's Hospital, Boston, with imperforate anus. Although no meconium was passed by urethra, the symptoms were not

urgent, as there was no distention or vomiting. The family history was negative; there being no miscarriages, syphilis or tuberculosis.

A perineal exploration was done, but the rectum could not be located. On the following day a colostomy was done, after which the patient showed marked improvement, but of short duration. His temperature varied from 97 to 102 during his stay in the hospital. He died on the fourth day, two days after the operation.

Pathological Report: Necropsy was performed 9 hrs. post mortem by Dr. S. Burt Wolbach and Dr. W. S. Quinland.

Anatomical Diagnosis: Imperforate anus, persistent cloacal duct, congenital absence of left kidney, hypertrophy of the right ventricle of heart, hypertrophy of adrenal (left), colostomy wound, perineal wound, acute peritonitis.

Body: The body was that of a newly born male baby, measuring 42 cm. in length. At a distance of 2 cm. to the right of the umbilicus was a colostomy wound 5 cm. long. This wound was closed by sutures except in its middle portion, where there was an opening 1.5 cm. long, through which feces could be expressed. In the perineal region a gaping wound 2 cm. long and 4 cm. deep was seen to enter the membranous urethra, instead of the rectum, which existed as a dilated sac high up in the pelvis.

Peritoneal Cavity: On opening the abdomen the stomach was seen to be distended with gas. The cecum and several loops of small intestine were deeply injected and matted together by fibrinous adhesions. The calibre of the gut was normal until the rectum was reached, where it became dilated to the extent of 7x5 cm., and communicated with the membranous urethra by an opening barely large enough to admit a small sized probe. The bladder was distended to its full capacity with dark brown turbid fluid, and its mucosa was deeply injected. Near the urethral orifice, two small openings were seen. One of these, situated somewhat to the right of the median line, communicated with the right ureter; the other, 1 cm. below and in the median line, proved to be a persistent cloacal duct. (Fig. 1.)

Other abnormalities present were a congenital absence of the left kidney and ureter. Hypertrophy of the left adrenal, which measured 5x4x4 cm. A right kidney shaped like a mushroom with its ureter given off from the inferior (caudal) surface. The heart was flattened so that its transverse measurement was 4.5 cm. and its vertical 2.5 cm. A Meckel's diverticulum was present.

CASE 2.—A-21-20.

Clinical Data: D. M., male, age 3 days, entered the hospital with imperforate anus. He began to vomit greenish material at birth. His abdomen became distended, but there was no tenderness. His temperature varied from 97-101. The family history was negative, father, mother, and three other children being well.

A perineal exploration and colostomy was done. The rectum was not entered, and the patient died on the fourth day, 24 hours after the operation.

Pathological Report: Necropsy was performed 1½ hrs. post mortem by Dr. S. Burt Wolbach and Dr. W. S. Quinland.

Anatomical Diagnosis: Imperforate anus, patent cloacal duct, colostomy wound, perineal wound, acute peritonitis, acute cystitis. So nearly alike were the findings in this case to the preceding one, that a less detailed description is given.

Body: The body was that of a male infant 49 cm. long. The skin was lemon yellow. There was a colostomy wound 6.5 cm. long, and 4 cm. deep that terminated behind the neck of the bladder and 1 cm. below the dilated rectum.

Peritoneal Cavity: On opening the abdomen the intestine was seen to be deeply injected and covered with a viscous exudate. The stomach was distended. The lumen of the gut was normal, until the rectum was reached, where a dilatation of 6.5x3.5 cm. was encountered. This sac-like dilatation communicated with the prostatic urethra by a patent cloacal duct 2 mm. in diameter. (Fig. 2.) The mucosa of the bladder was markedly congested and oedematous. Other abnormalities were a bifid left thumb and much dense fibrous adhesions around the common bile duct.

CASE 3.—A-18-2.

Clinical Data: L. H., male, age 6 days, entered the hospital with persistent vomiting of dark foul material that started on the second day. The abdomen was markedly distended and tympanitic. The superficial veins of the abdomen were engorged, and active peristalsis could be seen through the abdominal wall. The external anus, which was patent, had many fissures around it. The family history was negative; father, mother and one other child were alive and well. An ileostomy was done, but the patient died very shortly after the operation.

Pathological Report: Necropsy was performed by Dr. S. Burt Wolbach.

Body: The body was that of a poorly nourished male infant measuring 54 cm. in length. At a distance of 2 cm. to the left of the umbilicus was a surgical wound 8 cm. long, with sutures intact.

Peritoneal Cavity: On opening the abdominal cavity, there was seen to be a complete break in the continuity of the gut so as to form a proximal and distal cul-de-sac in the middle third of the ileum. The proximal blind end was dilated to 3 cm. and had a surgical opening that was sutured to the abdominal wall. Connecting this proximal end to a collapsed similarly blind distal portion were two narrow glistening white cords of fibrous tissue, each about 1 mm. thick and 3 cm. in length, and a portion of mesentery above. The distal part of the ileum was tightly contracted, but on incision was found to be

patent and empty. It led to a completely contracted cecum in approximately normal position. There was a normal appearing appendix coming from the posterior wall of the cecum. The ascending, transverse, descending colon, and sigmoid flexure and rectum were tightly contracted and empty, so as to resemble more nearly small intestine than large. This description of the defect is best illustrated in Fig. 3.

CASE 4.—A-16-4.

Clinical Data: S. B., female, age 3 days, was admitted to the hospital with abdominal distention and persistent vomiting of everything ingested since birth. No meconium was passed, although a patent anus which would not admit the tip of the fifth finger was present. Family history was negative. Father, mother and five children alive and well.

An enterostomy and perineal exploration was done. The rectum was, however, not entered and the patient died five hours after the operation. Here again, because of the close similarity of the defect in this case to that of the preceding, I shall only mention some of the more important findings.

Pathological Report: Necropsy was performed by Dr. Wolbach.

Body: The body was that of a female infant 43 cm. long, weighing 2400 grams. Above and below the anal orifice were surgical incisions 1 cm. long, and closed by sutures. An enterostomy wound 4 cm. long and 4 cm. to the left of the umbilicus was present.

Peritoneal Cavity: On opening the abdomen a defect quite similar to the preceding case was encountered in the upper third of the ileum. Following is a summary including the foregoing cases with twenty-three others collected from the Warren Anatomical Museum.

DISCUSSION.

Although there are various developmental defects of the intestine and its related structures, namely, atresia, stenosis, imperforate anus, diverticula and cyst, I shall attempt only to discuss those conditions encountered in the cases of the present issue. For convenience I shall begin with imperforate anus; not merely because of the clearer and more general conception of its occurrence, but it is the condition most frequently met, and that which is less likely to escape the immediate detection of the accoucheur.

Imperforate Anus: The embryology in this instance is interesting. Quoting Gaston⁶: "About the first month, the invagination of the ectoderm of the skin takes place on the ventral side of the embryo, opposite to the terminal portion of the cloaca, by which the ectoderm is brought into contact with the entoderm of the lower end of the intestine, the two layers becoming the cloacal membrane. When the cloaca becomes sub-divided into the urogenital sinus

and the rectum, the cloacal membrane is correspondingly separated into the urogenital aperture and into the anal membrane. About the end of the twelfth week the anal membrane ruptures forming the anus." Imperforate anus, then, results from imperfect union between the rectum above and the posterior part of the cloaca common to the urogenital aperture and the hind gut below. The deformity exists in varying degrees. The anal aperture may be separated from the rectum by mesodermal tissue an inch or more in depth as a result of insufficient invagination of the ectoderm to meet the rectum, which may end blindly above or communicate with the exterior by some unusual opening. Cases 6, 12, 15, 16, 19, 20 and 22 fall in this category. Another type is where the embryonal anal plate persists without the slightest invagination of the skin in this region. See Cases 1, 5, 10, 11, 13, 21, 23, 24, 25, 26, 29.

In the presence or absence of an external anus, if for some reason complete separation of the cloaca to form the urogenital sinus and rectum does not occur, the latter opens into the bladder, or more commonly into the prostatic or membranous urethra if the child be a male. See Cases 1, 2, 10, 13, 14, 26 and 27; or the rectum may open into the vagina if the child be a female. See Cases 11 and 25. From these types of imperforate anus, it can readily be seen how seven of these cases might have gone unrecognized at birth because of the presence of an external anus that did not communicate with the intestine above. Still more unusual openings of the rectum have been recorded in the literature; among them being two extraordinary cases cited by Bushe where in the case of Dinmore's an infant in whom the inferior portion of the abdomen was badly developed had the intestine directed upward, and opened under the border of the right scapula; and to that of Bils, in which the intestine mounted from the pelvis, through the chest, into the neck, and opened on the face by a very small opening.

ATRESIA.

Although many hypotheses relative to the causation of atresia of the intestine have been propounded, among them being bands of adhesions, twists and bends of the gut, blocking of mesenteric vessels resulting in defective blood supply, etc., none of these seem to give a very satisfactory explanation for the complete break in the continuity of the gut in the small intestine. Primarily, the duodenum presents a well defined round lumen in embryos of about 7 mm. This lumen later becomes divided into compartments by septa of proliferating lining epithelium so that in embryos of about 14 mm. the lumen may be completely occluded. At 30 mm. the compartments begin to become confluent, and in this way a central lumen is re-established. The view most commonly held is that of Tandler¹⁰ based upon the above briefly outlined embryology. Forssner³ confirmed Tandler's views to the

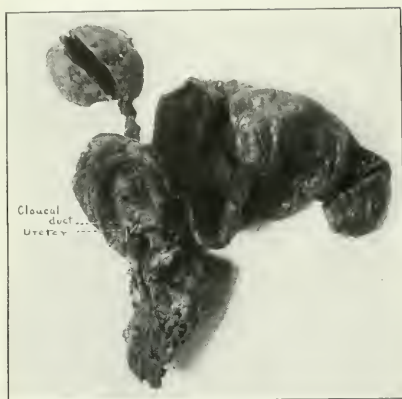


FIG. 1. Case 1. Ch. Hosp. A-21-19.—Imperforate anus, congenital absence of left kidney. Persistence of cloacal duct which enters bladder; on posterior wall median line, level of right ureteral orifice.

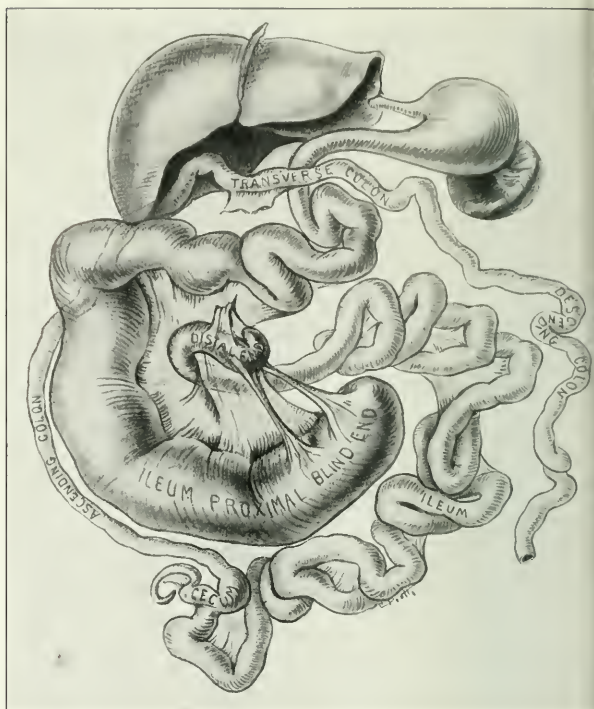


FIG. 3. Case 3. Ch. Hosp. A-18-2.—Congenital atresia in middle third of ileum, showing dilated proximal cul-de-sac and the contracted distal cul-de-sac attached to each other. The deformity falls in Group III (b) of Forsner's classification.



FIG. 2. Case 2. Ch. Hosp. A-21-20. Imperforate anus. Persistence of cloacal duct which enters prostatic urethra.

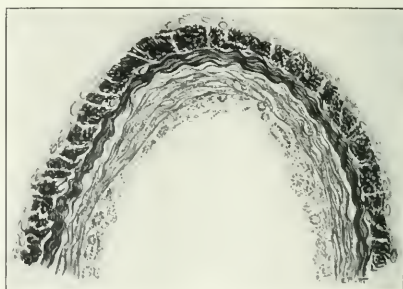


FIG. 4. Case 3. Ch. Hosp. A-18-2.—Microscopic drawing of a longitudinal section taken through the distal cul-de-sac, showing no variation of the coats around the blind end.

ANOMALIES								
No.	Date	By whom presented	Sex	Character- istics.	ANATOMICAL SITUATION	Treatment and Result	Remarks	
1	1901	Dr. G. B. Wolbach Dr. S. G. Quinlan	Male	Imperforate anus.	No external anus. Rectum ends as cul-de-sac 7 1/2 cm. having small opening that communicates with the prostatic urethra. Con- siderable amount of fecal matter. Three lobes to left lung.	Operation - Perineal explora- tion. Following day a colostomy was done. Died on the fourth day, two days after the operation.	Mekel's diverticulum was present. Patient showed marked improvement of short duration immediately after the colostomy. Autopsy showed acute peritonitis.	
2	1901	Dr. G. B. Wolbach Dr. S. G. Quinlan	Male	Imperforate anus.	No external anus. Rectum ends in cul-de-sac 5 1/2 x 3.5 cm. having small opening in prostatic urethra.	Operation - perineal explora- tion and colostomy. Died on the fourth day, 24 hours after the operation.	Patient drained freely during the night fol- lowing operation, but rapidly grew weaker. Stimulants were used without success. Auto- psy showed acute peritonitis. Rectum not en- tered by perineal route. Blind right thumb.	
3	1918	Dr. G. B. Wolbach	Male	Atresia	Blind ends in cul-de-sac in middle third. Remainder of intestine is tightly contracted.	Operation - Ileostomy. Perineal exploration. Died on the 4th day shortly after the operation.	There were several small fissures about the anus.	
4	1916	Dr. G. S. Wolbach	Female	Atresia	Blind ends in cul-de-sac just below junction where it is 6 times the width of the large intestine which measures 7 cm. across. Anus is patent.	Operation - Enterostomy. Perineal exploration. Died 6 hours after operation.	Anus although patent, will not admit the tip of the little finger. Probe can be inserted through anus for only 1/2 cm. The rectum was not entered at opera- tion.	
5				Imperforate anus.	Rectum ends blindly above anus. No external anus.		Museum specimen - No record.	
6		Dr. G. W. Stone	Male	Atresia	Rectum ends in cul-de-sac 3 cm. above the anus which is of normal size.	Operation. Trochar was passed on the eighteenth day. Died on the 26th day.	Rectum and anus were separated by a small amount of tissue. No opening between bladder and urethra.	
7	1895			Atresia	Duodenum ends in cul-de- sac 8 cm. wide. Shreds of mesentery connect duodenum with intestine below which measures only 6 cm. wide. Constriction below pylorus. Esophagus dilated.	Died on sixth day.		
8	1892	Dr. Garrett		Atresia	Duodenum ends in cul-de- sac and is enormously dilated 6.5 cm. Head of intestine well formed and collapsed. Blind end of jejunum .7 cm. wide.	Died on third day.	Child at term.	
9	1896	Dr. H. E. Marion		Atresia	Duodenum ends in cul-de- sac and dilated 4 cm. Its distal end lies just below into otherwise well formed intestine.	Died on seventh day.		
10	1877	Dr. G. W. Stone	Male	Imperforate anus.	No external anus. Rectum opens into bladder. Ureters dilated and course along the outside of bladder to the penis urethra. Penis rudimentary. Scrotum dilated.	Died.	There was a structure corresponding with the seat of the verrucosum.	
11	1877		Female	Imperforate anus.	No external anus. Rectum ends blindly with small opening into vagina.	Operation - Died.		
12	1877		Male	Atresia	Rectum ends blindly above the anal orifice from which it is separated by fibrous tissue.	Operation - Died.		
13	1877		Male	Imperforate anus.	No external anus. Atresia of rectum with opening in prostatic urethra.	Operation. Perineal exploration. Died.		
14	1877		Male	Imperforate anus.	No external anus. Rectum dilated and enters the membranous portion of urethra.	Operation. Perineal exploration. Died.		
15	1889			Imperforate anus.	Rectum ends in cul-de-sac a few cm. above anus.	Operation. On the 4th day a trochar was passed. Opening was made through the sur- rounding tissue into peritoneal cavity. Died on the 6th day.	Meconium passed freely after the use of trochar, which passed through the sur- rounding tissue into peritoneal cavity. Second child in the family with atresia of the intestine. The previous one, a male, lived 8 days, during that time he passed meconium per urethra.	
16	1888	Dr. Jones	Female	Atresia	Rectum ends in cul-de-sac separated by scarred bands of tissue from anus which is formed.	No operation. Died on sixth day.		
17	1888	Dr. Severens		Atresia	Anus. At birth a small probe only could be passed. But it became somewhat dilated later. Intestine was dilated above.	No operation. Died at 18 months.		
18				Atresia	Duodenum, ends as dilated cul-de-sac 4.5 cm. wide. Not connected with ribbon like intestine of .5 cm. width.	No operation. Died on 5th day.		
19	1888	Dr. B. Fortnam	Male	Atresia	Patent external anus that admitted the finger to a depth of half an inch. Rectum about 3 cm. above.	Operation. Anus was further opened by incision 1/2 inches upward. Died few hours later.	The intestine was not entered at operation.	
20	1887	Dr. A. B. Loomis	Female	Imperforate anus.	Atresia of rectum, two above anus. Separated from 1 inch from anus. Immediately above anus by less than an inch.	Operation. Trochar was passed through the anal plate for about 2 inches on the third day. Died two days later.	The trochar failed to enter the intestine.	
21	1887	Dr. J. C. Warren		Imperforate anus.	Atresia of ascending colon. Cecum measures 5 x 3 cm. Attached distally is a blind atrophic and 3 x .5 cm., representing the remainder of the large intestine.	Died in a few days.		
22	1886	Dr. John Hunt	Male	Atresia	Patent external anus with one half inch of intestine above. Upper intestine ran a straight course and terminated in cul- de-sac about 4 cm. above anus.	No operation. Died on the sixth day.	Operation was not done possibly because there was a patent external anus.	
23	1886		Female	Imperforate anus.	No external anus. Atresia of rectum above the anus.	Perineal exploration. Died 17 hours after.	The posterior part of the vagina was extensively everted, resulting in profuse hemorrhage. Intestine not entered.	
24	1886		Male	Imperforate anus.	No external anus. Rectum ends in cul-de-sac a short distance above the anus.	No operation. Died on the fourteenth day.	The lower portion of the small intestine and the whole of the large were inflamed. Large intestine was atrophied.	
25	1886	Dr. Walker	Female	Imperforate anus.	External anus absent. Rectum ends in cul-de-sac about 6 cm. above anus, and communicates with upper posterior vagina by small opening.	Colostomy. Died at 3 months.	Two or three weeks before death the colostomy would heal and feces was passed as before by the vagina.	
26	1887	Dr. J. H. Lane	Male	Imperforate anus.	No external anus. Rectum dilated and ends in cul-de-sac with capillary opening into the membranous urethra.	No operation. The patient was kept under the influence of paregoric. Died on the ninth day.	Developed broncho-pneumonia as a terminal infection.	
27	1810	Dr. W. G. Chamberlain	Male	Imperforate anus.	No external anus. Rectum ends in cul-de-sac with acute opening into the membranous urethra. Penis rudimentary, no scrotum.	Died.	No available record of treatment.	

effect that a condition of more or less complete occlusion of the duodenum may persist in the human from the very early embryological stage (5 mm. to 30 mm. in embryos), in which it normally occurs, until birth. The persistence of the epithelial septa is followed by an ingrowth of mesenchyma. Forssner found such atresias in the human colon and esophagus. He confirmed Tandler's work. Kreuter³ also finds it in the colon. Forssner⁴ quotes numbers of authorities giving such epithelial occlusions of the intestinal tract in various animals,—fowls, frogs, guinea-pigs, rabbits, dogs, and swine. He confirms these findings in the normal embryo of man's duodenum, rats' and fowls' duodenum, as the above sequence in the development of the intestine. He gives the following classification of the defect.

Group I. Septa of mucous membrane (a) with epithelium wholly intact. (b) Loss of epithelium in places (irisform).

Group II. Blind ends connected with a strand composed of serosa, muscularis and submucosa. In the submucosa one finds (a) No epithelium. (b) Only an occasional epithelial rest. (c) A small epithelial tube joining the blind ends.

Group III. Free blind ends (a) Not attached to each other. (b) Attached to each other.

The etiological factor of intestinal atresia and stenosis is to be found in the embryonal occlusions. One can interpret the subsequent pathogenic development as follows. If the epithelial occlusion does not disappear when the fold-building process through the ingrowth of the mesenchyma begins, then the ingrowth of the mesenchyma into the epithelium occurs before the continuity of the tube is re-established. (A partition.) If the connective tissue bridge is thin, then it provides a membrane. If it is thicker, it becomes a cord. If the connective tissue bridge is not complete or is very delicate at one place so that it tears, an incomplete membrane is formed. Through modification occurring during fetal life the various forms of atresia and stenosis can occur. It is possible to have a malformation which originally was a stenosis develop into atresia, which accounts for the fact that meconium is sometimes found distal to the atresia, if such a defect is formed after the third month. Atresia of the esophagus is to be explained in the same manner, but in addition the very early communication between the esophagus and trachea must be taken into account. It is further stated, that the gut fails to expand owing to the large size and downward growth of the liver at this stage, and to pressure exerted by the mesodermal wall on the closed epithelial cord.

In order to determine as nearly as possible

in my cases what histological changes had occurred in places where the gut was occluded, I made longitudinal and cross sections through the terminal portions of the proximal and distal cul-de-sacs of Kaiserling fixed preparations. The sections were stained with hematoxylin and eosin. Microscopically none of the sections showed any evidence of scarring in the coats, no intervention of fibrous tissue or proliferation of epithelium between the walls of the gut or anything that would suggest a healed inflammatory process. On the contrary, the mucosa, submucosa, muscle and serous coats were seen in longitudinal sections to course without any apparent variation in thickness from one wall of the intestine around the blind end, to the opposite wall. These observations, which are quite consistent with those of Forssner,⁵ were best studied in sections taken from the distal cul-de-sacs where there was absence of dilatation. (See Fig. 4.) Sections taken from the proximal cul-de-sacs showed the above changes with less distinctness, due on the one hand to stretching of the coats, and on the other to a localized acute inflammation either as a result of accumulated meconium, or an enterostomy operation. In some of the cases the walls of this portion of the gut were definitely thickened and discolored dark red. Microscopically, sections from the thickened wall showed hypertrophy of the muscle coat and irregular losses of mucosa. Sections of bands of fibrous tissue (apparently mesentery) that joined the proximal and distal cul-de-sacs were also examined microscopically to determine if possible to what extent thrombosis plays in the formation of such defects; but no blood vessels could be found in any of the sections. From these observations and the works of other investigators, I am inclined to believe that the break in the continuity of the gut is due to embryonic arrest in development, rather than to some mechanical injury of which it may be the end-result.

OCCURRENCE.

Location: Atresia of the intestine may occur in any portion of the intestinal tract. In twenty of the cases herein presented it occurred in the rectum; once in the ascending colon, twice in the ileum (first and middle thirds), and four times in the duodenum. From so few cases as these, it is wholly impossible to arrive at any definite conclusion as to what portion of the intestine the defect is most likely to occur; yet, statistics record the majority of cases to occur in the duodenum and the jejuno-ileum regions. Just how many of these cases occur each year it is difficult to say with any degree of certainty, since it may be assumed that a few are likely to go unrecognized; but judging from the figures given below it may be concluded that the condition is one of the rare forms of congenital malformations. I am indebted to Drs. F. S. Newell, Boston Lying-In Hospital; J. B. DeLee, Chicago Lying-In Hos-

pital and Ross McPherson, New York Lying-In Hospital, for the following data. In the last 10,000 confinements at the Boston Lying-In Hospital, only one case of imperforate anus was encountered.

In 10,000 cases at the Chicago Lying-In Hospital two cases were encountered. In 50,000 cases at the New York Lying-In Hospital, there were 28 cases of atresia and imperforate anus; 24 of these were males and 4 were females.

PROGNOSIS.

The prognosis is usually grave on account of complications; hemorrhage, peritonitis and septicæmia. According to Bevan,² because of the probability of an ascending nephritis developing, it is usually wise in these cases of imperforate anus where there is connection between the lower end of the rectum and the bladder, to be satisfied with a permanent colostomy opening, and not risk the life of the patient in an attempt to separate the rectum and the bladder. If, however, the child be a female, the prognosis is more favorable, particularly if the recto-vaginal opening is of fairly large size. Gay cites a case of Morgagni in which Tatonicus, a Jewess, passed all her feces by the vagina and lived to the age of 100 years. Of Dr. Ross McPherson's 28 cases, 17 died, 10 lived, and one was a stillbirth. Death occurs usually in 5 or 6 days if the occlusion is high up in the small intestine. Atresia and imperforate anus are sometimes complicated by other anomalies that may or may not influence the prognosis of the case. This depends largely on the location and extent of such a defect. See Nos. 5, 2, 10 and 27.

TREATMENT.

Surgical invention is the only treatment. Because of the variation in defect, the procedure must necessarily be modified to best meet the requirements of the existing condition. The perineal approach, which is the one frequently adopted, is sometimes futile on account of the very limited incision through which the surgeon is compelled to explore the deeper perineal structures, in an attempt to find the rectum, which might terminate high up in the pelvis. In such an event, an enterostomy is resorted to.

The antiquity of the operation as given by Thom⁹ dates from eighteen hundred years ago; the first recorded instance being that of Egineta. Bell of England, in 1787, was the first to adopt the rational procedure of dissecting through the perineum and searching for the rectal ampulla. The first successful operation by this method in the United States was performed by Campbell, 1790. While to Amusat of Paris in 1835, and somewhat later to Verneuil, belongs the honor of perfecting the operation as it is now performed; i.e., dissecting through the perineum without injury to the sphincter muscles, searching for the rectum, opening it, and suturing the bowel to the perineal incision.

SUMMARY.

Atresia and imperforate anus may be regarded as rare forms of congenital malformation of the intestine due to embryonic arrest in development. The defect occurs once in about 15,000 infants, and may be found in any portion of the intestine from the duodenum to the rectum.

It is uncertain whether the malformation is in any way influenced by hereditary tendencies, since it is impossible to arrive at definite conclusions from so few cases as these. Only one of this collection, No. 16, gave a history of another child in the family having passed feces per urethra. The prognosis is grave on account of complications, particularly in males, in which sex the malformation is more frequently present. Of these 27 cases 13 were males, 6 were females, and in the remaining 8 the sex was not given. The only treatment is surgical.

Ordinarily, the presence of a patent external anus furnishes enough proof that the intestine is well formed; but from the foregoing observations it is obvious that one cannot emphasize too strongly the importance that should be attached to the first bowel movement in the new-born, since a break in the continuity of the gut is sometimes present.

It is of further interest to note that in the following cases no operation was performed.

- No. 16—Atresia, died on the 6th day.
- No. 18—Atresia, died on the 5th day.
- No. 22—Atresia, died on the 6th day.
- No. 24—Imperforate Anus, died on the 14th day.
- No. 26—Imperforate Anus, died on the 9th day.

The fact that these five cases lived over a period of from five to fourteen days without operation, makes it more apparent that early operation in every instance should be resorted to as a means to a more favorable prognosis.

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TREATMENT OF DIABETIC GANGRENE.

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GANGRENE occurring in the elderly diabetic patient has long been regarded with discouragement by both surgeon and physician. The tedious, if not eventually unsatisfactory, course

of conservative treatment, and the frequency of coma following amputation have rendered it one of the most serious of the complications of diabetes. The following seven consecutive cases illustrate successful surgical treatment, the importance of the diet in preventing postoperative acidosis, and suggest possible prophylactic measures.

CASE HISTORIES.

CASE 1. Joslin 1932, Hebrew, roofer, aged 61 years, admitted September 21, 1920. Onset of diabetes in 1906. Three months previously he noticed pain, redness and swelling of the left great toe. During the last three weeks ulceration with purulent discharge had been accompanied by increasing pain. Inflammation and oedema involved the entire toe, tarsal-metatarsal joint, and dorsum of the foot. On the plantar aspect an ulcer with a deep sinus apparently communicated with the joint. Pulsation was felt in the dorsalis pedis, posterior tibial and popliteal arteries, but the radial and brachial arteries and retinal vessels gave evidence of advanced arteriosclerosis. The urine contained a slight trace of albumin, sugar 1.9 per cent., acetone +, and no diacetic acid. X-ray showed marked calcification of the dorsalis pedis and posterior tibial arteries.

Owing to the patient's objections immediate operation was not urged. Active motion, massage and heat were applied locally and the patient kept in bed. After three days the left great toe became black, with a sharp line of demarcation somewhat above the tarsal-metatarsal joint.

On September 28, under spinal anesthesia, Dr. R. C. Cochrane amputated the left leg at the junction of the upper and middle thirds. Recovery was uneventful and the patient was discharged on the forty-third day.

CASE 2. Joslin 1993, English auditor, aged 62 years. First seen November 19, 1920. Diabetes was discovered in an insurance examination in 1917. He had followed no special diet, as he "thought it might work out all right." One month before, his fourth toe on the left was pinched by a tight shoe. One week later, his physician found an infected corn with gangrenous borders extending anteriorly to the nail. Two weeks later, two terminal phalanges were removed under cocaine. The next joint was then involved, and within a few days the third toe became discolored. When he was admitted to the hospital on November 23, a deep, sloughing ulcer with gangrenous edges extended backward between the third and fourth toes, with oedema and redness as far as the ankle joint. Pulsation in the dorsalis pedis was barely palpable. Temperature was 100 degrees. Urine—Albumin, slight trace; sp. gr., 1026; sugar, 2.4 per cent.; diacetic acid, +. Numerous hyaline and granular casts. Blood sugar 0.35 per

cent., before breakfast. All blood sugar estimations recorded in this paper were made on fasting specimens.

On November 24, under spinal anesthesia, Dr. R. C. Cochrane amputated the leg at the juncture of the upper and middle thirds. Following operation the temperature fell to normal and remained so. No diacetic acid was present at any time after the operation. Recovery was uneventful and the patient was discharged on the thirty-seventh day.

CASE 3. Joslin 2173, an American housewife, aged 66 years. Admitted April 17, 1921. Diabetes was discovered in 1918 when she had a cerebral hemorrhage. Three months previously she burned her foot on a hot soap stone in bed, and poulticed it with linseed meal. Thirteen days before she had experienced increasing pain. During the preceding three days, at another hospital, her temperature had remained about 100 degrees, and she had received three grains of codein for her pain. On the plantar surface of the left foot was a large, deep ulcer with gangrenous borders. Oedema, redness and heat extended over the entire plantar surface and onto the dorsum as far as the ankle. Advanced arteriosclerosis of the peripheral vessels, with marked retinitis and optic neuritis, was present. Urine—Sp. gr., 1026; albumin, large trace; sugar, 0.9 per cent.; diacetic acid, 0; sediment, many pus cells. Blood sugar, 0.36 per cent.

On the day of admission, under gas anesthesia, a preliminary incision showed that the entire subcutaneous tissue on the plantar surface was necrotic; the plantar fascia was gray and sloughing at several points. On April 18, under spinal anesthesia, Dr. R. C. Cochrane amputated the leg at the juncture of the upper and middle thirds. The wound healed by first intention, and she was discharged on the thirty-third day. On January 15, 1922, she returned with a pressure sore on the knee. Blood sugar was 0.09 per cent., and her urine was sugar free. She was discharged after three days' stay.

CASE 4. Joslin 2339, Hebrew merchant, aged 70 years; duration of diabetes, eight years. First admitted on September 8, 1921, because of severe pain in his left foot. At that time the left great toe was cold and blue, and on its medial surface was a purulent bleb. Pulsation was felt in the posterior tibial, but not in the dorsalis pedis artery. Urine contained 2.5 per cent. sugar, albumin a slight trace, and a moderate number of leucocytes. Blood sugar was 0.25 per cent. Blood urea nitrogen was 27.6 mgm. per 100 c.c. The bleb was opened. While in bed, with massage and active hyperaemia, the toe became warm and normal in color, and the pains improved. The urine showed only a trace of sugar at discharge two and a half weeks later.

He reëntered October 26, complaining of severe pains in the leg. On the dorsal surfaces of the great toe and the third toe were ulcerated areas with gangrenous borders. The foot was cold and discolored. Urine contained 0.4 per cent. sugar and his blood sugar was 0.23 per cent. On the day following, under spinal anesthesia, Dr. D. F. Jones amputated the leg at the mid-thigh. Recovery was uneventful, and he was discharged on the thirty-third day.

CASE 5. Joslin 2311, an English salesman, aged 58 years, admitted August 15, 1921. Onset of diabetes August, 1913. Since that time sugar and albumin had been present in his urine whenever examined. Six weeks previously the third toe of his left foot became discolored and cold. Ten days ago the skin broke between the second and third toes. A deep ulcer with gangrenous borders extended back along the tendons. The peripheral vessels showed marked arteriosclerosis. Blood pressure was 220/120. Urine—Sp. gr., 1007; albumin, large trace; sugar, 0.2 per cent.; diacetic acid, 0; sediment, 15 to 20 hyaline and granular casts per high-power field. Numerous W. B. C. Blood sugar, 0.26 per cent. Non-protein nitrogen, 45; phenolphthalein, 19 per cent.

During the first week he remained in bed and the foot was dressed daily with sterile salt dressings. The urine became sugar free and the blood sugar fell to 0.13 per cent. He continued to have severe pain in the foot and leg, which interfered with his sleep. At the end of this time the ulcer had in no way improved and the second toe had become cold and cyanotic. X-ray showed marked calcification of the dorsalis pedis and posterior tibial arteries. As it was evident that, in spite of the improvement in his general condition, the condition of his foot was decidedly worse, operation was advised. An attempt at spinal anesthesia failed because of marked hypertrophic arthritis of the spine. No muscular relaxation could be secured under gas and oxygen, and finally etherization was resorted to with many misgivings. Dr. R. C. Cochrane amputated the leg at the mid-thigh. Following operation acetone appeared in the urine during the first few days only. Blood pressure was 170/90 the day following operation, 160/110 on the seventh day, and 145/85 at discharge five weeks later.

CASE 6. Joslin 2237, an American lawyer, aged 62 years. Diabetes was discovered in June, 1920. On April 1, 1921, he pricked a blister resulting from a slight burn on his right foot. The foot became infected and a cellulitis developed which extended above the ankle. The foot was thrice incised in June and July, but did not heal. X-ray showed osteomyelitis of the head of the fifth metatarsal and the proximal end of the first phalanx, and calcification of the dorsalis pedis artery. On August 25, Dr. R. C. Cochrane amputated the leg at the juncture of

the upper and middle thirds, under spinal anesthesia. Recovery was uneventful and he was discharged on the seventeenth day. On December 1, 1921, his blood sugar was 0.11 per cent. and the urine was sugar free.

CASE 7. Joslin 2382, a Hebrew, male, aged 64 years. Diabetes was discovered in 1913. He was admitted October 14, 1921. During the preceding two weeks his right foot had been cold and painful. The peripheral vessels were markedly sclerosed, and no pulsation could be felt in the dorsalis pedis or posterior tibial arteries on the right. The right great toe was cold, blue and tender. X-ray—Marked calcification of the dorsalis pedis and posterior tibial arteries. Urine—Sugar, 6.5 per cent; diacetic acid, 0.

He remained in bed for seventeen days, the foot being kept warm and dry. Massage of the leg and active exercises at the ankle-joint were carried out. The blood sugar fell to 0.12 per cent., 0.13 per cent., and 0.14 per cent. on three different occasions, while the urine contained 0.1 per cent. or 0.2 per cent. sugar. At the end of this time, on the great toe and the second toe, two definitely gangrenous areas had appeared, and the entire foot, up to a point midway between the tarsal-metatarsal junction and the ankle, was cyanotic and cold. Under spinal anesthesia, Dr. D. F. Jones amputated the leg at the mid-thigh. At operation the femoral artery was found to be plugged almost to the mid-thigh with an organizing clot. At no time after operation did the patient show any acidosis. He became sugar free after ten days and was discharged in four weeks.

Etiology.—In these seven cases the average age was 63 years, and the average duration of diabetes, before the onset of gangrene, was six years and five months. Three of the seven patients were Hebrews, two were English and two American. All had been overweight prior to the onset of diabetes, and with one exception their occupations in earlier years had required little muscular activity. These facts may bear some relation to the extreme degree of arteriosclerosis, which was the most important immediate etiological factor. The diabetes was originally mild, or, at most, moderate in degree, as evidenced by its long duration and fairly ready susceptibility to treatment. Yet in the first three cases the fasting blood sugar was 0.30 per cent. or more, indicating the danger of neglecting treatment even in mild diabetes. Trauma had occurred in four cases, and in every instance neglect or unwillingness to accept advice delayed either prompt or radical treatment. In only three instances did the gangrenous process begin without any known or obvious trauma. The importance of painstaking surgical care for minor traumatic lesions of the feet, such as blisters, abrasions, corns, ingrown nails

and slight burns, cannot be overemphasized in relation to the prevention of gangrene.

Anesthesia.—The choice of anesthetic was considered of prime importance. Six patients had spinal anesthesia with novocaine. In no instance was any deleterious effect noted, and in contrast with ether practically no acidosis occurred after operation. In one patient marked hypertrophic arthritis of the spine made spinal anesthesia impossible. This patient, No. 5, a powerful man, did not relax under gas and oxygen, and therefore was given ether, in spite of hypertension and chronic nephritis.

Diet.—Once the patients were in the hospital

decision as to operation rested with the surgeon. In two cases operation was performed within twenty-four hours of admission. During this time fat was omitted from the diet and carbohydrate in the form of orange juice and oatmeal gruel was given. In the other cases, where the preoperative period varied from one to three weeks, moderately restricted diets, with a preponderance of carbohydrate, were employed. No patient was fasted.

The following table summarizes the diets given previous to operation, during the three weeks following operation, and the diet at discharge:

TABLE 1
AVERAGE DAILY DIETS

Case	Preoperative Time				Postoperative											
	In	C	P	F	1st Week			2nd Week			3rd Week			At Discharge		
		C	P	F	C	P	F	C	P	F	C	P	F	C	P	F
Hospital																
I—7 Days	—	78	52	10	58	44	24	50	58	33	59	62	47	75	71	54
II—1 Meal	—	20	23	0	77	43	20	58	40	33	63	51	44	96	67	54
III Immediate operation					114	51	10	69	42	34	68	47	35	114	59	65
IV—1 Day	—	32	34	45	38	23	34	33	35	48	30	33	57	45	41	70
V—8 Days	—	41	25	24	75	33	33	58	43	69	69	54	82	86	64	86
VI No food before operation					71	45	43	70	65	80				60	68	72
VII—17 Days	—	51	42	46	32	44	33	35	44	50	41	50	73	65	55	75

NOTE: C=carbohydrate, P=protein, F=fat.

Only one patient entered the hospital sugar free, and he had been under observation for some time at his home. No operation was postponed in order to get the patient sugar free, and indeed five operations were performed in the presence of both glycosuria and hyperglycemia. Yet every patient left the hospital sugar free. The following table gives the blood sugar values during the preoperative period, three weeks postoperative, and at discharge:

TABLE I:
BLOOD SUGAR PERCENTAGES
(Before Breakfast)

Preoperative	Postoperative			
	1st Week	2nd Week	3rd Week	At Discharge
I—0.30—0.29	0.37—0.30	0.25	0.24	0.15
II—0.35	0.32	0.22	0.19	0.16
III—0.36	0.36		0.20	0.15
IV—0.23		0.20	0.17	0.11
V—0.26—0.13	0.24	0.16	0.13	0.13
VI—	0.17	0.19	0.10	0.10
VII—0.12—0.14	0.15	0.13	0.11	0.14

NOTE: Analyses were made by the Folin-Wu method.

Discussion.—That the course of gangrene with infection occurring in diabetics differs from that of non-diabetic patients has long been recognized. Lambert and Foster have reported cases illustrating the extraordinary improvement in the local condition with dietetic treatment which removed acidosis and glycosuria. They state that many cases of so-called "diabetic gangrene" are really no more than acute

infections whose course is modified by the presence of diabetes. In such cases they found that diabetic treatment, together with drainage of pus pockets, removal of sloughs, and formalin dressings, resulted in normal granulation and ultimate recovery without amputation. Stettin, himself a surgeon, also advocates conservative treatment.

However, in another group, best illustrated by five of these patients, the process must be regarded, at least from the therapeutic standpoint, as arteriosclerosis plus infection complicated by diabetes. When extreme arteriosclerosis, with partial or complete occlusion of the arteries supplying the part, exists, the local process must advance in spite of improvement in the diabetes. In four of the cases cited conservative treatment, *i.e.*, rest in bed, diet to reduce hyperglycemia and glycosuria, elevation of the foot, massage, active and passive hyperaemia—was tried for periods varying from one week to four months. In each instance, in spite of the patient's becoming sugar free and having normal blood sugar, pain continued and the gangrenous process advanced. Granting that diabetes may have an etiologic relationship to the arteriosclerosis in the first place, diabetic treatment will not repair the arterial damage at such a late stage. Roentgenograms are most valuable in giving evidence of calcification of the arteries, osteomyelitis or joint destruction. Calcification of arteries strongly suggests the uselessness of delaying amputation, especially if bone and tendon destruction have also occurred. With such patients delay is dangerous.

In the presence of advanced peripheral arteriosclerosis, lowered renal and circulatory function may be expected. Of the patients here reported three excreted from 12 to 40 per cent. phenolphthalein in two hours ten minutes; four had hypertension ranging from 160 to 220 mm. mercury; three had definitely enlarged hearts; seven had albuminuria; four had albumin plus casts in the urine; and four had non-protein nitrogen values in excess of 40 milligrams per 100 c.c. of urine. Not only acidosis but circulatory failure or renal complications were to be considered.

Spinal anesthesia in no instance was accompanied by evidence of shock or increase of acidosis. The patients were given from 2000 to 3000 c.c. of fluid daily, including cocoa shells, broth, weak tea and coffee. The salt in the diet was limited to five grams daily, and often was less, as indicated by the salt in the urine, which varied from two to six grams daily during three weeks after operation. The protein in the diets varied from seven-tenths of a gram to one gram per kilogram body weight. Most important in the prevention of acidosis was an excess of carbohydrate over fat, and the avoidance of such radical changes in the diet as fasting in the effort to render the urine sugar free. Elderly patients do not bear fasting well under favorable circumstances and at the time of operation fasting is fraught with grave danger.

SUMMARY.

1. Seven cases of diabetic gangrene with successful operative treatment are reported

2. The prevention of gangrene of the feet in diabetes depends upon

(a) Conservation of the circulation by special exercises, massage, and rest.

(b) Avoidance of such practices as cutting corns, pricking blisters, cutting toe nails too closely.

(c) Careful aseptic surgical treatment of minor lesions, such as blisters, corns, burns, etc.

3. The first step in the treatment of infections is to secure circulatory support by elevation of the foot.

4. If gangrene and infection are established, amputation is indicated so soon as non-operative surgical treatment ceases to give definite improvement.

5. Decision as to operation should always rest with the surgeon. Operation is possible and practicable even in the presence of sugar, acidosis or both.

6. Patients, especially if fat or aged, should not have fasting treatment in preparation for operation.

7. During 48 hours before and after operation the diet should consist of a moderate supply, or for a diabetic a liberal supply of carbohydrate food amounting to 50 or 100 grams daily in the form of such easily digested articles as orange juice, oatmeal gruel with

skimmed milk, shredded wheat, Uneda biscuit and egg albumin.

8. Spinal anesthesia is the first choice, gas and oxygen the second, and ether should be used only as a last resort, and then for the briefest space of time.

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HYDATID CYST OF THE LUNG.

REPORT OF TWO CASES.

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During the last five years in the Out Patient Department of the Massachusetts General Hospital, one or more cases of hydatid disease have been observed yearly. Up to 1917 twenty-nine cases were studied and reported.¹

In sixteen cases the cysts were located in the liver alone; in five cases other parts as well as the liver were involved, namely, the peritoneal cavity twice; omentum, lung, and kidney once each; in the other eight cases the cysts were found in the brain, heart and pericardium once; kidney twice, peritoneum once, gastro-hepatic omentum once and retroperitoneum twice. There were no cases of hydatid cysts primarily of the lung. Since then two cases of the lung have been observed; one a unilateral cyst of the right lung, the other multiple cysts of both lungs.

These two patients came to the Out Patient Department principally for cough and bloody sputum.

One of these cases is of considerable interest on account of having multiple echinococcus cysts of both lungs with a probable cyst of the kidney. A similar case has recently been reported.²

Cranwell and Vegas in their reported statistics mention two cases of double cysts of one lung; one had two cysts of the right lung, the other had two cysts of the left lung, found at autopsy. Recently Alfredo Buzzi³ reported a sixteen-year-old boy with two cysts of the right lung. He also mentions a case of Araz Alfaro⁴ with multiple cysts of the right lung and a cyst of the left lung revealed by the x-ray and confirmed at autopsy.

It has always been thought by observers of the disease that the liver is the chief seat of the disease. Of late years many more cases of echinococcus cyst of the lung have come to light, due to the more extensive use of the x-ray in the study of chest conditions. As a rule the disease is one-sided and runs a chronic course.

The right lung is more often affected than the left. The most frequent seat of the disease is the middle portion of the lung from the fourth

to the eighth rib, with a tendency to occur lower down. The highest location in the lung has been the axillary region, no case having been reported at the apex. The most common seat is at the periphery of the lung, and cases have been reported adherent to the pleura. If the cyst is located at the periphery of the lung the physical signs are more important than if centrally located. The increase in the size of the hydatid cyst of the lung is not subject to any rule, and the elastic pulmonary tissue accommodates itself to the morbid condition without any reaction for months, and sometimes years.

Hydatid of the lung occurs in two forms: the closed and the open cyst. The open cyst is that which has ruptured into a bronchus or into the lung structure. The expulsion of part or the whole of the contents of the cyst may take place; infection of the cavity occurs, expulsion of purulent material results, sometimes with hemorrhage and severe shock from the absorption of cyst contents. If exit is blocked there result the symptoms of absorption of septic material. Membrane, vesicles and scoleces have been found in the expectorated material of a ruptured cyst. The contents of the cyst may be clear fluid or purulent material. Taubenschlag² has seen as many with clear fluid as purulent. When the cyst ruptures into a bronchus the membrane may undergo degenerative changes from infection of the cavity. Spontaneous cure of the cyst is very rare. This may come about by the death of the hydatid or from rupture of a cyst into a bronchus with the expulsion of the fluid and membrane, subsequent calcification and cicatrization of the cavity. Navarro³ has reported a case of spontaneous cure of hydatid of the lung in a child five years of age.

Briefly stated the symptoms may simulate any pulmonary infection. The symptoms vary; not until the cyst ruptures or the lung becomes inflamed or congested will the patient be conscious of any trouble. Trauma may be the predisposing factor, as in Case 2. Cough, pleuritic pains, expectoration of bloody or clear sputum, not uncommonly a frank haemoptysis. Bloody sputum is a frequent occurrence⁴. Dyspnoea is an inconstant sign. There may be loss of weight and strength, rarely fever unless the cyst has ruptured and become secondarily infected.

Eosinophilia has rarely been present in any of the cases studied, and when present is of negligible value. The complement-fixation test is confirmatory⁵, but when negative does not rule out the disease, as a dead cyst will give a negative reaction as in one of the present cases. Then again the test is not always available. The x-ray is our chief aid in the diagnosis, especially in the closed cyst. Exploratory puncture of the cyst is inadvisable, as sudden death may occur from the rupture of the cyst or from a severe haemoptysis⁶. The cyst fluid has been

evacuated and 1-1000 bichloride solution injected with negligible result.

The x-ray findings may be divided into three distinct pictures: 1st—Closed cysts, which occur as dense circular or oblong, sharply defined areas of increased density within the lung field. The dull area is of even density throughout and the surrounding lung tissue is normal in appearance. The respiratory movements of the diaphragm are only slightly affected and the mediastinum is not involved. 2nd—Open cysts, which may be sub-divided into those which have ruptured into a bronchus and those which have ruptured into the surrounding lung. In the former, the appearance is the same as in closed cysts, excepting that the involved area is of diminished instead of increased density, the appearance suggesting a large cavity with sharply defined borders.

When rupture occurs into the lung structure the appearance closely resembles that of lung abscess. The borders of the lesion are no longer sharply defined and the pleura may be involved, producing a marked limitation of the respiratory excursion of the diaphragm on the affected side.

CASE 1. A. A. 22. Single, Greek. Farm hand. In the U. S. five years; admitted to O. P. D. February 17, 1917.

Chief complaint. Cough, pain in chest, and blood in the sputum.

Present illness. About one and one-half years ago, after slight exertion, he coughed up a teaspoonful of bright red blood, having had a cough six months previous to this. Again, about one year ago, coughed up a glass full of bright blood (one-half glass at a time) after very little coughing. He then stayed in bed the next three months and had bloody sputum every day in streaks and clots; no large hemorrhage. At the end of that time he began to work again and had a little bloody sputum every three or four weeks. One month ago he coughed up one tablespoonful of fresh blood, but none since. During the past one and one-half years, has had only slight cough, mostly in the morning, raising from two to three teaspoonfuls of sputum throughout the day. He felt well, was able to work without feeling tired, and had a good appetite. Has lost some weight and has had no night sweats. Three or four days ago felt tired, unable to work, and had a true chill late the next evening and felt feverish. Some pain in right front chest on coughing. No expectoration of clear fluid.

Past illness. Definite illness at sixteen years. In bed for six months; pain all over abdomen and in the back. Amputation of middle and fourth fingers of the right hand by machine three years ago. In Sparta, worked on a farm. No sheep, one dog.

Physical examination. Well developed and nourished. Mouth and teeth good. No glandular enlargement. Chest well developed, expansion equal. Lungs. Dullness at right base, posterior



R

L

PLATE 1.—X-ray of chest in CASE 1, showing cyst of base of right lung as a dense mass, the shadow of which blends with the shadow of the diaphragm.



R

L

PLATE 2.—X-ray of chest in CASE 2, showing in the right lung three types of cysts. The dense round shadow is that of a closed cyst; the superimposed ring is the outline of a cyst which has emptied into a bronchus; mesial to these is an irregular shadow due to the rupture of a cyst into the surrounding lung tissue. There is a closed cyst also in the left lung.



and anterior, with diminished breath sounds and whispered breath, absent tactile fremitus from angle of scapula downward. *Heart*, Negative. *Abdomen*. Slight tenderness over liver, which is palpable, otherwise negative. *Spleen*, not felt. *Reflexes*, normal. *Sputum*, negative; blood smear, normal; Wassermann, negative; echinococcus fixation, negative; urine, negative.

X-ray examination by Dr. G. W. Holmes. The definite outline of a round, dull mass can be seen at the right base, apparently somewhat nearer the front than the back of the chest; it is about the size of a grape fruit and its lower border is lost below the dome of the diaphragm. It does not move with ordinary respiration, but can be displaced somewhat with forced respiration. It is of an even density throughout and its borders are sharply defined. The heart is not displaced.

Operation, Dr. W. Whittemore. Thoracotomy with excision of rib for cyst of the lung. One-fourth of seventh and eighth ribs excised below angle of scapula. Intercostal muscles tied and removed. Pleura opened. It was somewhat thick. Many thin adhesions found between pleura and firm mass in right lower lobe. Diaphragm somewhat below this. Mass sutured to parietal pleura. Incision made in mass, one inch deep, which seemed to go through lung tissue. Needle inserted one inch further. Small amount of clear fluid found. Patient began to pass clear fluid through nose and mouth. Finger dissection into mass opened up a large cyst filled with clear fluid. About 1,500 cc. clear fluid evacuated. No small cysts or hooklets found. Cigarette drain to cavity. Considerable drainage of clear fluid.

Pathological report. A small fragment from the wall of the cyst, showing on microscopic examination a bit of lung whose alveoli are compressed with fibrosis and small round cell infiltration of the connective tissue. There are numerous areas of hemorrhage and some of the alveoli are filled with large cells choked with brownish pigment. There is no evidence of echinococcus. Chronic inflammation.

December 11, 1917. Report from cyst fluid.

Specific gravity, 1.012. Protein, 1.05%. Sugar, 0.055%. Chlorides, .74%.

Creatinine, 0.56 milligrams per 100 c.c. fluid. Urea nitrogen 15 milligrams per 100 c.c. fluid.

Discharged relieved to O. P. D.

January 1. Very slight discharge. Still pain in right costal margin.

January 6. Patient well, wound clean and solid, discharged.

Re-enters hospital September 19, 1919.

Present illness. Since leaving the hospital the patient has continued to cough, especially in the early morning and at night. Still raises small amount of blood, some times bright, but usually dark. No big hemorrhage. Dull localized pain in right lower chest since operation. The pain is increased by coughing. The patient has been working on a farm up to ten months ago, when the pain became too severe to continue work. He

has had no other illness since operation and has not lost weight, but feels weak.

Physical examination. *Thorax*. Some limitation of motion of the right base. *Lungs*. Dullness from seventh rib, right back, extending forward to front at fifth rib. Absent tactile fremitus. Diminished to absent whispered voice and vocal fremitus, also breath sounds diminished. No râles. Slight area above this with increase of tactile fremitus, vocal fremitus and breath sounds. No râles. On the left, dullness in the base from the ninth rib. *Heart*, normal.

Operation by Dr. Whittemore, September 24, 1919. Thoracotomy for recurring echinococcus cyst. Gas oxygen anaesthesia. Incision about 10 cm. long made in scar of old thoracotomy wound and rib resetted for about 6 inches. Lung found to be adherent to costal pleura. A large tumor mass presented in lung. On opening into this it proved to be a large cyst and a considerable amount of clear fluid was evacuated. Several large fragments of cyst wall were removed, the cavity was packed with gauze and the wound partially closed.

During the first few days after operation there was considerable drainage of a clear fluid. On the fourth day the packing was removed and the following day the remainder of the cyst was expelled through the operative wound. The wound healed very promptly following this, and in three weeks it was entirely healed. The patient had an uneventful convalescence.

Pathological report. Irregular pieces of cyst wall which show smooth, pearly white surface and which have an elastic consistence. No hooklets can be found on fresh examination. Microscopic examination shows a laminated membrane without cellular structure. The gross or histological appearances are in every way consistent with echinococcus cyst.

CASE 2. P. P. Age 25, white, Greek, single. Laborer in cotton mill; in the U. S. five years; admitted to O. P. D. Sept. 24, 1919.

Chief complaint. Pain in the chest and cough with blood in the sputum.

Present illness. About two years ago was hit on the right side by a piece of iron which fell on him. He was taken to a hospital at Youngstown, Ohio, where he stayed four months and was two months in bed. He was treated medically. At this time he began to cough a lot, often raising bloody sputum. He felt fairly well after leaving the hospital and the cough left him. About six months later cough and hemoptysis returned with pain in the right chest. For the last seven months has not been able to work because he felt sick, raised blood off and on, had pain in the right side and coughed much. Sometimes he has had pain in the left side also. Appetite, poor. Bowels, regular.

Past history. Always well up to present illness; was shepherd in Greece, with dogs associated with him. Weight at present, 150 pounds; two years ago, 170 to 175 pounds.

Physical examination. Well developed and nourished. Skin clear, cheeks flushed, head negative; sclerae clear, pupils equal, regular; tongue coated, throat and tonsils negative; neck negative; chest, well developed; expansion left side greater than right; heart normal in size and position, sounds regular, good quality, no murmurs; lungs, *right chest* dull below spine of scapula almost to flatness, with râles and bronchial breathing, dull in axilla. *Left chest*, râles in lower one-half, with some bronchial respiration; spine negative, no costo-vertebral tenderness; abdomen soft and tympanitic, no masses, spasm or tenderness. Genitals negative, no hernia. Extremities, negative. Reflexes, normal. Blood, white blood corpuscles 7800; red blood corpuscles 7,296,000; 6,896,000; Hgb. 100%; stained specimen, reds normal, platelets normal, but increased. *Poly.* 78; *cosin.* 5; *mast* $\frac{1}{2}$; *lym.* $5\frac{1}{2}$; *L.M.* 11; Stools, normal; no *parasite* or *ova*. Wassermann negative. Echinococcus fixation test strongly positive.

Sputum. Specimen is mucopurulent and shows no evidence of hooklets or membrane. It is negative for T. B. and shows no characteristic bacteriological finding. Urine amber, clear, acid 1028, albumen 0, sediment 0.

X-ray by Dr. George W. Holmes. In the left chest, below the fifth rib, there is an area of increased density, 4 cm. in diameter; it is round and of even density, with sharply defined borders.

When the position of the tube is changed, overlying it there is a ring-like shadow of diminished density which changes its relation, suggesting a different plane to the dense shadow. Neither reaches the periphery. Similar slightly larger process is seen in the right lung below the fourth rib, with involvement of lung structure.

February 16, 1920. X-ray. Oxygen inflation of abdomen. Appearance in chest much the same as in previous notes.

It is possible to see distinctly the outline of the liver and spleen. They appear to be normal in size and shape; just below the lower margin of the liver there is a round, dense mass, which is apparently connected by a band of adhesions to the abdominal wall.

There is a ring-like shadow in the left kidney, having all the appearances of an echinococcus cyst.

Under the direction of Dr. George W. Holmes, from October 3, 1919, to May 15, 1920, the patient received nine x-ray treatments from two to four weeks intervals, with no improvement in the symptoms, or change in the x-ray findings, nor was there any alteration in the fixation test taken on three different occasions.

When the patient was last seen in May he still complained of an irritating cough, occasionally blood-streaked sputum, pains on both sides of the chest and left kidney region. Tried to work part of the day, but tired easily.

REMARKS.

Echinococcus cyst of the lung is one of the conditions to be thought of and ruled out in cases of pulmonary disease with bloody sputum or frank haemoptysis, especially among the immigrant classes from continental Europe and Asia Minor. The disease is common in South America, Australia, and New Zealand.

The x-ray is our chief aid in the diagnosis, especially in the closed cyst of the lung, and the complemental fixation test when positive is confirmatory, but not essential. Of course the finding of hooklets in the sputum will make the diagnosis, but the cyst will then have ruptured into a bronchus.

TREATMENT.

There is no medical treatment. X-ray treatments may be tried. It had no effect in Case 2. Salvarsan has been tried¹, with no apparent result.

Whenever possible, surgery is the treatment.

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STUDIES IN PANCREATIC FUNCTION. ENZYME CONCENTRATION OF DUODENAL CONTENTS AFTER THE INGESTION OF PURE FOODSTUFFS AND FOOD MIXTURES BY NORMAL MEN.

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THE present communication is a report of the results derived from a study of enzymatic activities of duodenal contents. The duodenal contents were obtained from normal young men after feeding pure carbohydrate, protein or fat, both alone and in various combinations, and also after the ingestion of certain food mixtures to be described later. The purpose of the study was to compare the effect of the various types of foodstuffs on the relative amounts (concentrations) of enzymes present in duodenal contents, as ascertained by estimation of the degrees of enzyme action; and by the

same method an attempt was made to determine the relative amounts (concentrations) of enzymes developed at various periods during the time the stomach was emptying itself of food.

Important studies on the rôle of the pancreas in intestinal digestion begin with the work of Claude Bernard¹ in 1856. This observer presented detailed evidence of his claim that the pancreatic juice was of great importance in the process of digestion. But the truth of Bernard's contention was not appreciated for many years, and the physiologists of his time, unable to confirm his observations, opposed the view that the pancreatic secretion played an important rôle in digestion.² The rôle of the pancreas in digestion remained unsettled until the studies of Pawlow,³ Pratt, Lamson, and Marks,⁴ and McClure and Pratt⁵; although much important work on the digestive function of the pancreas was reported by other observers between the years 1890 and 1911.⁶ Pratt, Lamson, and Marks⁴ found that excluding pancreatic secretion from the gut of dogs was immediately followed by the lack of absorption of gross amounts of fat ingested by the animal, and that this failure of absorption remained constant. These observers were able to demonstrate that technical errors accounted for contradictory results obtained by various workers. McClure and Pratt⁵ confirmed the observations of Pratt, Lamson, and Marks, and also demonstrated that depancreatized dogs absorbed from 10 to 50 per cent. of nitrogen and from 17 to 50 per cent. of the fat ingested. Further, they proved that presence of pancreatic tissue in an animal's body is not necessary for the absorption of the products of intestinal digestion, as was held by Lombroso.⁶

The rôle of the pancreas in digestion as demonstrated by the classical work of Pawlow is admirably presented in the well-known book entitled, "The Work of the Digestive Glands". Pawlow worked with dogs, in which animals he produced the fistulae which bear his name. By means of a fistula he was able to obtain pure pancreatic secretion. In this secretion, obtained after feeding meals consisting essentially of protein, fat or carbohydrate, the activities of the various types of enzymes were studied. From these studies Pawlow concluded that the kind of food eaten called forth an increase in the secretion of the enzyme specific for that particular type of food; *i.e.*, protein food caused the secretion of a predominant amount of trypsin, carbohydrate food of amylase, etc.

In 1902, Bayliss and Starling⁷ believed they proved the presence in the intestinal mucosa of a substance called "prosecretin". This "prosecretin" is thought to be converted into "secretin" by the action of hydrochloric acid coming from the stomach. The "secretin" thus formed is believed to be carried through the blood stream to the pancreas, and after reaching that organ to excite its external secretion. But as is pointed out by von Fürth⁸, various substances, such as

cholin, are present in the duodenal mucosa, which have the same action on the pancreas as has "secretin". For this reason von Fürth concludes that until much more is found out about the chemical nature of "secretin," its actual existence remains unproved. Furthermore, nervous control of the pancreas may possibly be important in stimulating its external secretion.⁹ Therefore, it is evident that the status of the factor or factors stimulating the secretion of the pancreatic juice is not well established.

All of the work discussed in the foregoing paragraphs has been carried out on lower animals. Just how much of this work is applicable to man can only be determined by actual observations on human subjects. However, there is much pathological evidence confirming the importance of the external secretion of the pancreas in digestion in man; for example, exclusion of pancreatic juice from the intestines in man is known to be accompanied by marked disturbances in the digestion and absorption of food. But much less is known about the character of pancreatic juice secreted by the human pancreas during digestion. Various investigators have attempted to repeat Pawlow's experiments on human subjects with pancreatic fistulae. These subjects have, however, with one exception, been in such pathologic states or the pancreatic secretion obtained has been so contaminated by material from the intestines that interpretation of experimental results has been problematic. Wohlgemuth¹⁰ was fortunate enough to get pure juice from a human subject with a traumatic pancreatic fistula. Other than for the presence of the fistula, the subject was in normal physical condition. Wohlgemuth repeated the experiments on this subject which Pawlow had carried out on dogs. The results obtained are as follows: The ingestion of food consisting largely of fat brought about pancreatic secretion showing the greatest degrees of all types of enzyme action, while the secretion following a carbohydrate meal showed the least. On the other hand, carbohydrate meals were followed by the secretion of the largest amounts of pancreatic juice, while fatty food produced the least. Thus the results of Wohlgemuth's observations showed the existence of a relation between the kinds of food-stuffs ingested and the amounts of pancreatic juice secreted, and also, the degrees of enzyme action found in this juice. However, no relation was demonstrated between the type of food-stuff fed and the degree of activity of the enzyme specific for that kind of food, as was found by Pawlow in his work on dogs. In this connection it is well to emphasize that the methods for estimating the degrees of enzyme action used by Pawlow, Wohlgemuth, and others, are subject to various errors, so that interpretation of results obtained by their use are open to serious criticism; as has been discussed in a former communication.¹¹ Nevertheless, their results show that the secretion of pancreatic juice during

digestion is in some way governed by the food ingested.

The results of the work outlined in the foregoing discussion permit the following conclusions: 1. Ingestion of food is followed by the secretion of pancreatic juice; but the exact mechanism by which the secretion is stimulated is not established. 2. The external secretion of the pancreas plays a most important rôle in digestion.

While the work outlined above has yielded much of great importance, the methods used have not permitted the study of the conditions under which intestinal digestion actually occurs in living man. It is generally accepted that the end-products of intestinal digestion in man are the same as those in the lower animals; that is, carbohydrates are converted into monosaccharids, fats into soaps, and proteins into amino acids, and that these end-products are absorbed as such. But it should be noted that it was not until the comparatively recent work of Folin,¹² and of Van Slyke¹³ that the absorption from the gut of the end-products of protein digestion was established.

There are available but few studies on the physical and chemical conditions under which intestinal digestion occurs in man. In fact, many of the conditions affecting enzyme action were not established until the publication of the work of Sörensen¹⁴ as late as 1909. This investigator showed that enzyme action was dependent on the hydrogen ion and buffer conditions, as well as those of temperature, under which the enzyme was placed. Practically the only studies on the physical chemistry of intestinal digestion in the living, normal, human subject are those of McClendon *et al.*,¹⁵ and the studies of McClure, Wetmore and Reynolds.¹⁶ Hydrogen ion concentration determinations published by these investigators show that after the ingestion of a mixed diet the pH of duodenal contents of normal man varies in the immediate neighborhood of 4 to 7. McClure, Wetmore and Reynolds¹⁷ have devised methods for the estimation of degrees of enzyme action of duodenal contents which conform to the present-day conception of the physical chemistry of enzyme action, and (a) have made some studies¹⁸ on the physical character and enzymatic activities of duodenal contents obtained from normal young men. The purpose of the latter studies was to devise a procedure for obtaining duodenal contents which would permit the establishment of a normal for the various types of enzyme activities, for use in certain clinical studies. Incidentally, however, it was found that the ingestion of different types of food brought about duodenal contents showing rather characteristic degrees of viscosity, varying in color and consisting very largely of liquid containing but very small amounts of the food originally eaten.

Further studies on the details of physiology of intestinal digestion in normal man were considered important; because only by such knowl-

edge can those processes of pathologic physiology of abnormal gastrointestinal conditions be ascertained which are of importance in clinical medicine. For this reason the present study of the duodenal contents of normal young men has been made.

PROCEDURE.

The subjects chosen for the study were normal young men who gave no history of gastrointestinal derangement. The subjects were instructed to eat a light supper the evening before an experiment, to drink only water during the evening and to ingest nothing after midnight. The following morning the Rehfuß gastroduodenal tube was passed on the empty stomach and without the aid of water. The metal tip was allowed to pass through the pyloric sphincter and as far as the second portion of the duodenum; its position being ascertained by means of fluoroscopic observation. The subjects then reclined on the right side and the duodenal contents were collected either (a) both before and after the ingestion of food or (b) only after the ingestion of food. The contents were siphoned off.

Enzymatic activities were estimated by the methods developed by McClure, Wetmore and Reynolds.¹¹ In these methods proteolytic activity is estimated by allowing duodenal contents to act on a solution of soluble casein. The casein not affected by the proteolytic enzyme is precipitated by means of metaphosphoric acid solution. The index of proteolytic activity is taken to be the number of milligrams of nitrogen not precipitated by the metaphosphoric acid. This nitrogen is determined by an adaptation of the method of Folin and Wu for the determination of nonprotein nitrogen in the blood. Amylolytic activity is estimated as the number of milligrams of glucose developed by the action of duodenal contents on a solution of soluble starch. The index of amylolytic activity is taken to be the total number of milligrams of glucose developed, as determined by the method of Folin and Wu for the determination of sugar in the blood. Lipolytic activity is estimated by allowing duodenal contents to act on a true emulsion of cottonseed oil and determining the amount of acidity developed by titrating with tenth normal NaOH solution. The total number of c.e. of N/10 NaOH necessary to neutralize the acidity developed is used as the index of lipolytic activity. The duodenal contents and the reagents used must be controlled for the presence of nitrogen not precipitated by metaphosphoric acid, for copper reducing bodies and for acidity.

The pure foodstuffs used were arrowroot starch, edestin,* casein and olive oil. The food mixtures were (a) 300 c.e. of a mixture of milk, water, and cottage cheese and (b) 300 c.e. of 20 per cent. cream. The food mixtures were mixed with 40 gms. barium sulphate, which allowed

* The preparation of edestin was furnished by the Arlington Chemical Company, Yonkers, N. Y., whom we thank for their cooperation.

their behavior in the stomach and duodenum to be observed through the fluoroscope.

Duodenal contents may be obtained by means of the duodenal tube, either with or without the use of aspiration. For purposes of description the collection of contents without the use of aspiration is called siphonage. By either method the flow of duodenal contents through the tube was found to be intermittent, issuing in jets at intervals varying from a few seconds to several minutes. By means of the fluoroscope it was determined that the jets occurred coincidentally with the presence of peristalsis in the duodenum, while in the absence of peristalsis only a few drops or no fluid at all were obtained. These observations indicate that the flow of duodenal contents is dependent on an increase in intraduodenal pressure; and for this reason aspiration has no advantage over siphonage. In the work here reported duodenal contents were collected by siphonage.

The enzymatic activities of 20 specimens of fasting duodenal contents were studied. These specimens were collected from six subjects over periods of thirty minutes. The results obtained, together with the quantities and physical character of the duodenal contents, are outlined in the following table (Table I).

Study of the table shows that proteolytic activity varied from 1.2 to 5.0 mgms. of nonprotein nitrogen, lipolytic activity from 0.0 to 2.7 c.c. of N/10 NaOH, and amylolytic activity from 0.3 to 6.7 mgms. glucose. The quantities obtained were from 15 c.c. to 58 c.c. in 15 specimens; while in two specimens 2 c.c. and in one 135 c.c. were collected. All the specimens were of very slight viscosity, and lightly stained some shade of yellow by the presence of bile, except three. Of the three exceptions noted, two were more deeply bile-colored and moderately viscid, and one was fairly viscid and partly light yellow and partly dark yellow in color.

After the ingestion of food substances in volumes of 50 c.c., collection of duodenal contents was divided into three stages, as follows:

1. From immediately after the ingestion of the food substance up to the time the duodenal contents became markedly darker in color (due to bile); *the first stage of collection.*
2. Then over the period of the succeeding hour; *the second stage of collection.*
3. Then over the period of a second hour; *the third stage of collection.*

Study was made of duodenal contents ob-

TABLE I.
Enzymatic activities, amounts and physical character of fasting duodenal contents collected over 30-minute periods.

Subject.	Enzymatic activity.			Amt. in c.c.	Color.	Viscosity.
	Proteolytic in c.c. N/10 NaOH.	Lipolytic in c.c. N/10 NaOH.	Amylolytic in mgm. glucose.			
Cush	2.1	0.0	0.3	20	Pale yellow	Slight
	3.7	0.7	3.7	20	Pale yellowish green	Slight
	2.7	1.6	2.3	20	Pale greenish yellow	Slight
Cught	2.4	2.7	1.4	50	Pale greenish yellow	Slight
	1.2	0.4	0.6	135	Light brown	Moderate
	1.6	0.5	0.3	15	Lemon yellow	Slight
	1.3	0.5	0.7	15	Lemon yellow	Slight
	4.3	1.9	0.8	60	Lemon yellow	Moderate
White	4.6	0.2	3.9	25	Greenish brown	Moderate
	3.7	1.0	0.8	2	Lemon yellow	Slight
	3.7	1.0	0.8	2	Lemon yellow	Slight
	5.0	0.5	2.4	37	Dark greenish brown	Moderate
	3.0	0.2	2.3	20	Pale yellow	Slight
	3.0	0.2	2.2	40		
	2.4	0.4	3.2	17		
	5.0				15 min. light yellow	
		1.1	6.7	10	15 min. dark yellow	Moderate
McQ	2.5	0.4	1.6	58	Pale yellow	Slight
	1.4	0.6	2.1	43	Pale yellowish green	Slight
Brown	3.0	1.1	0.8	39	Pale yellow	Slight
Desj	3.9	0.5	2.0	60	Deep golden yellow	Moderate

TABLE II.
Enzymatic activities, amounts and physical characters of duodenal contents obtained during the first stage of collection.

Subject	Enzymatic activity			Amt. in c.c.	Period of collection in minutes	Color	Viscosity	Free food of food	Kind of food ingested
	Proteolytic in c.c. mpm. MPM.	Lipolytic in c.c. N/10 NaOH	Amylolytic in c.c. mpm. glu-cose						
Ought	3.9	2.3	1.4	30	9	Pale yellowish green	slight	none	casein
	0.0	0.0	0.0	50	24	light yellow		some	
White	4.2	1.6	2.0	23	14	brownish yellow	slight	none	casein
Cush	3.5	0.2	3.1		23	yellowish			casein --
Cush	0.9	0.3	1.1	40	32	Pale yellowish green	slight	10 c.c.	olive oil
DeQ	0.2	0.3	1.2	38	12	Pale yellow	slight	some	olive oil
Brown	2.1	0.2	0.7	60	17	Pale yellow	slight	some	olive oil
DeJ	1.9	1.0	1.4	60	17	Pale yellow	slight	none	olive oil
DeJ	3.4	1.8	2.4	30	11	Lemon yellow	slight	some	olive oil
Brown	1.3	0.5	0.7	67	13	Deep yellow	moderate	some	edestin
Brown	2.2	1.0	1.9	30	30	Colorless	slight		arrowroot starch
Brown	1.3	0.0	0.4	30	15	Lemon yellow	slight	some	5 c.c. oil 5 gm. edestin
DeJ	2.8	0.7	2.3	15	11	Lemon yellow	slight	some	5 c.c. oil 5 gm. starch

TABLE III.
Enzymatic activities, amounts and physical character of duodenal contents obtained during the third stage of collection.

Subject	Enzymatic activity			Amt. in c.c.	Color	Viscosity	Frequency of food	Kind of food ingested
	Proteolytic in c.c. mpm. MPM.	Lipolytic in c.c. N/10 NaOH	Amylolytic in c.c. mpm. glu-cose					
Cush	4.0	0.6	3.1		Pale yellow		none	casein
Ought	3.6	2.7	0.9	285	dark brown	moderate	none	casein
White	4.0	2.6	0.8	100	greenish yellow	slight	none	olive oil
DeQ	1.2	0.6	0.1	240	pale yellow	slight	none	olive oil
Cush	5.5	4.3	4.3	115	dark greenish brown	moderate	2 c.c. oil	olive oil
DeJ	1.5	0.6	2.9	200	golden yellow	moderate	none	olive oil
"	3.5	1.0	2.1	255	yellowish brown	" "	5 c.c. oil	olive oil
Brown	1.9	1.6	3.4	140	golden yellow	moderate	small amount	olive oil
Procr	2.5	2.2	2.6	178	brownish yellow	moderate	none	10 gm. edestin
DeJ	2.8	1.2	2.0	87	lemon yellow	moderate	none	10 gm. edestin
DeJ	3.2	1.5	3.2	75	brownish yellow	moderate	none	10 gm. arrowroot starch
Procr	5.1	3.0	3.5	35	lemon yellow	moderate	none	10 gm. arrowroot starch
DeJ	3.2	2.4	3.9	95	yellowish brown	moderate	none	5 c.c. olive oil 5 gm. arrowroot starch
Brown	3.6	0.4	3.1	8	pale yellow	slight	none	5 c.c. olive oil 5 gm. arrowroot starch

tained during the *first stage of collection*. A total of thirteen duodenal contents from six subjects was studied and the findings outlined (Table II).

The findings outlined in the above table show that immediately after the ingestion of pure food substances in volumes of 50 c.c., the color and viscosity of the duodenal contents remained similar to those of the fasting contents. But after the lapse of periods varying from 9 to 32 minutes, and 45 minutes in one subject not noted in the table, an abrupt change to a markedly deeper bile color occurred. Before this change in color took place, if casein, edestin or oil had been ingested, food appeared in the duodenal contents. The presence of food was noted either immediately after its ingestion or within a period of 20 minutes, but the change in the color of the bile did not occur for from 7 to 32 minutes after the initial appearance of this food in the duodenal contents. As far as can be judged, there was no increase in the quantities collected over those obtained from the fasting duodenum. The proteolytic activity varied from 0.8 to 4.3 mgms., the lipolytic from 0.0 to 2.2 c.c., and the amylolytic from 0.0 to 3.1 mgms. These variations are comparable to those found in the fasting contents. So that the duodenal contents collected from immediately after the ingestion of food up until the abrupt change to a deep bile color, and those obtained from the fasting duodenum are comparable except for the presence of food in the former.

Studies were next made on duodenal contents collected during the second hour after the change from pale yellow to a deep bile color occurred; *i.e.*, the *third stage of collection*. The results obtained are outlined (Table III).

Study of the table shows that the specimens were some shade of light yellow, with the exception of two specimens which were dark brown. All specimens were moderately viscid but three, which were slightly so. Food was present in three of the specimens. Proteolytic activity varied from 1.2 to 5.5 mgms., lipolytic from 0.6 to 3.0 c.c., and amylolytic from 0.1 to 4.3 mgms. These findings are comparable to those obtained in the fasting duodenal contents, and in those collected immediately after the ingestion of food, except for the increase in viscosity, and the occasional presence of food. (The findings will be discussed later.)

The collection of duodenal contents for the first hour after the abrupt change to dark-colored bile occurred is called the *second stage of collection*, or the first hourly specimen. The enzymatic activities, physical character and quantities of duodenal contents obtained during this second stage of collection are outlined in the following table (Table IV).

All duodenal contents outlined in the above table were deeply bile colored, in which respect they differed from the great majority of duodenal contents previously described in Tables I, II, and III. The viscosity was much greater than was found in contents derived from the fasting duodenum or collected immediately after the ingestion of food, but not more so than was usually found in specimens obtained during the third stage of collection. The amounts of duodenal contents collected varied from 42 c.c. to 270 c.c. Proteolytic activity varied from 2.7 to 5.7 mgms., lipolytic from 1.0 to 4.4 c.c., and amylolytic from 2.5 to 4.5 mgms. of glucose. Comparison of the figures with those represent-

TABLE IV.
Enzymatic activities, amounts and physical character of duodenal contents obtained during the second stage of collection.

Subject	Enzymatic activity			Amt. in c.c.	Color	Viscosity	Kind of food ingested
	Pro- teo- ly- tic in c.c. mm. N/10 NaOH	Lip- oly- tic in c.c. mm. N/10 NaOH	Amy- lo- ly- tic in mgms. glu- cose				
Deej	3.2	1.9	3.6	270	very dark brown	Moderate	10 c.c. olive oil
Brown	3.9	2.4	4.5	125	very dark brown	" "	10 c.c. olive oil
Deej	2.7	1.5	2.5	140	deep brownish	" "	10 gm. edestin
Brown	3.3	1.9	2.4	105	deep brownish yellow	" "	10 gm. edestin
Deej	3.0	1.2	3.3	100	light brownish yellow	" "	10 gm. arrow root starch
Brown	2.4	1.4	2.5	100	light brownish yellow	" "	10 gm. arrow root starch
Brown	4.7	2.0	3.5	95	deep yellowish brown	" "	5 gm. edestin, 5 gm. arrow root starch
White	4.3	1.2	6.	42	blackish	" "	10 c.c. olive oil
Cush	3.5	3.3	4.3	20	" " " "	" "	" " " "
McQ	5.6	4.4	3.	80	" " " "	" "	" " " "
Ought	4.7	3.5	4.4	135	" " " "	" "	" " " "
Deej	4.0	1.8	2.6	200	" " " "	" "	" " " "

ing the minimum and maximum enzymatic activities of the fasting duodenal contents (Table I), and of those obtained during the first and

third stages of collection (Tables II and III) are given in the following table (Table V).

TABLE V.

Minimum and maximum degrees of enzymatic activities of fasting duodenal contents and of contents obtained during the first, third and second stages of collection.

Time of collection of duodenal contents	Enzymatic activity					
	Proteolytic in mgm. UPN.		Lipolytic in c.c. N/10 NaOH		Amyolytic in mgm. glucose	
	Min- imum	Max- imum	Min- imum	Max- imum	Min- imum	Max- imum
Fasting duodenum	1.2	5.0	0.0	2.7	0.3	6.7
First stage collection	0.8	4.3	0.0	2.2	0.0	3.1
Third stage collection	1.2	5.5	0.6	3.0	0.1	4.3
Second stage collection	2.7	5.7	1.0	4.4	2.5	4.6

The figures in the above table, representing the maximum degrees of enzyme action, show that considerable degrees of activities may be present in duodenal contents collected at any period; while those for minimum action show that activity may or may not be manifested. But the degrees of enzyme activity shown by the figures for minimum action of the various types of enzymes in the duodenal contents obtained during the second stage of collection are much greater than those shown for the minimum action in specimens collected at other periods. The significance of this finding will be discussed later.

Observations were made in order to determine the relative enzymatic activities of fractions of the duodenal contents obtained during the second stage of collection. For this purpose three subjects were fed a mixture consisting of 25 gms. casein and 25 c.c. water. After the dark colored bile appeared the first fractions of duodenal contents were collected over periods of 7 minutes, 15 minutes and 16 minutes; the next over periods of 33, 34 and 15 minutes, and of 45 minutes in one. The results obtained are outlined in the following table (Table VI).

TABLE VI.

Enzymatic activities of fractions of duodenal contents obtained during the second stage of collection after the ingestion of casein.

Subject.	Enzymatic activity			Amt. in c.c.	Period of col- lection in min- utes.
	Pro- teo- ly- tic in N/10 NaOH	Lip- oly- tic in c.c. N/10 NaOH	Amy- lo- ly- tic in mgm. glucose		
Ought.	5.5	4.0	1.0	55	15
	4.2	2.0	1.0	165	33
White.	4.7	3.2	1.9	35	16
	4.9	3.2	1.4	50	34
Cush.	3.7	1.8	2.0		7
	3.4	1.7	1.0		15
	3.5	1.4	3.5		45

Study of the table (Table VI) shows that, in the different fractions of duodenal contents collected from the same subject, the degrees of action of the same type of enzyme did not vary widely, except in the two following instances. The lipolytic activity of the first fraction obtained from subject Ought is twice that of the second fraction; and the amyolytic activity of the third fraction from subject Cush is much larger than those of the first two fractions. None of the figures fall below those given for minimum enzymatic activities of duodenal contents obtained during the second stage of collection as outlined in Table IV. It will be recalled that the second stage of collection began with the appearance of dark-colored bile; therefore, the increase in the flow of enzymes into the duodenum and the beginning of the flow of bile were about coincident.

A synopsis of the results of the foregoing observations is given as follows: Duodenal contents obtained from the fasting duodenum, and during the first and third stages of collection are comparable, except for the greater viscosity of the specimens of the third stage of collection. The enzymatic activities of the specimens vary from little or no activity to considerable degrees of activity. When compared with these specimens, those obtained during the second stage of collection were much darker in color, and the minimum degrees of enzyme action were all much greater. The fractions of duodenal contents collected during the second stage from the same subject showed fairly uniform degrees of activity for each type of enzyme. An increase in the flow of enzymes and bile into the duodenum occurred approximately at the same time.

Pure food substances were used in the study to determine the effects of various foods on the relative concentrations of enzymes present in the duodenal contents, as estimated by degrees of enzyme action. The pure substances were edestin, arrowroot starch and olive oil. When fed singly, 10 gms. of each substance were used; when given in combinations of twos, 5 gms. of each were mixed; when all three were mixed,

3 1/3 gms. of each were used. To each preparation in hot water, forming a gelatinous paste, before it was fed. The results are given in the following table (Table VII).

TABLE VII.
Enzymatic activities, amounts and physical character of duodenal contents derived from pure food substances, fed singly and in combinations.

Subject	Enzymatic activity			Amt. in c.c.	Color	Viscosity	Kind of food ingested
	Proteolytic in 50 c.c. N/3.	Lipolytic in 50 c.c. N/10 NaOH.	Amylolytic in 50 c.c. glucose				
Brown	3.9	2.4	4.5	125	very dark brown	Moderate	10 c.c. olive oil
	3.3	1.6	2.4	105	dark brownish yellow	Moderate	10 gm. edestin
	2.4	1.4	2.5	100	brownish yellow	" "	10 gm. arrow root starch
	4.7	2.0	3.5	95	dark yellow brown	" "	5 c.c. olive oil and 5 gm. edestin
	5.0	0.7	2.9	65	yellowish brown	" "	6 1/3 c.c. olive oil, 3 1/3 gm. edestin, 3 1/3 gm. starch
Deej.	3.2	1.8	3.6	270	very dark brown	Moderate	10 c.c. olive oil
	3.4	1.5	3.6	140	dark brownish yellow	" "	10 gm. edestin
	3.0	1.0	3.3	100	yellowish brown	" "	10 gm. arrow root starch
	5.4	1.2	3.1	110	yellowish brown	" "	5 gm. arrow root starch, 5 c.c. olive oil
	4.5 2.1	0.0 0.8	2.7 2.1	90	brownish yellow	" "	5 gm. arrow root starch, 5 gm. edestin

As outlined in the above table, the viscosity of the various specimens was about the same. After the ingestion of oil the duodenal contents were very dark green in color, after edestin brownish yellow and after starch yellowish brown. Thus, each pure food substance gave rise to a characteristic color in the duodenal contents. The mixtures of those foods which contained oil gave rise to duodenal contents of yellowish brown color, while the contents from the starch and edestin mixture were brownish yellow. The largest quantities of duodenal contents were collected from the oil, the next largest from the edestin, less from the starch and the smallest amounts from the food mixtures. Lipolytic activity was greatest in duodenal contents derived from the oil, next greatest in those from edestin and least in those from the starch; while in the contents from the mixtures of oil and starch and of oil and edestin lipolytic activity was of average amount. Thus, in these two subjects the ingestion of oil was followed by the greatest degree of action of the enzyme specific for fat. But this specific relation did not hold for the proteolytic and amylolytic activities after the ingestion of the edestin and starch. In general the figures representing proteolytic and amylolytic activity are comparable in the different specimens of duodenal contents derived from the two subjects. After the ingestion of the mixtures of olive oil, edestin and starch and of

starch and edestin lipolytic activity was reduced, and on one occasion absent.

Further comparative studies of enzymatic activities of duodenal contents were made on three subjects after the ingestion of olive oil and of casein. For this purpose the subjects were fed a mixture of 25 c.c. olive oil and 25 c.c. tap water and a mixture of 25 c.c. bulk of casein and 25 c.c. tap water. The results obtained are outlined in the following table (Table VIII).

TABLE VIII.
Enzymatic activities of duodenal contents derived from olive oil and from casein during the second stage of collection.

Subject.	Enzymatic activity.			Kind of food ingested.
	Proteolytic in 50 c.c. N/3.	Lipolytic in 50 c.c. N/10 NaOH.	Amylolytic in 50 c.c. glucose.	
Ought	4.2	2.0	1.0	Casein
	5.7	3.5	2.8	Olive oil
White	4.9	3.2	1.4	Casein
	6.0	4.8	4.3	Olive oil
Cush	3.5	1.4	3.5	Casein
	3.5	3.3	4.3	Olive oil

Study of Table VIII shows that duodenal contents derived from oil presented greater degrees of lipolytic action than those derived from casein. These findings confirm those discussed above (Table VII) which show that lipolytic activity is greater in duodenal contents derived from olive oil than in contents derived from casein, edestin and starch meals.

Comparative studies of the degrees of enzymatic action were made in duodenal contents derived from the fasting duodenum, after the ingestion of tap water and after drinking cornstarch solution. For this purpose the fasting contents were collected over periods of thirty minutes, then 50 c.c. of tap water were given and the contents collected over periods of 40 to 60 minutes, and after this 50 c.c. of 0.5 per cent.

cornstarch solution were ingested by two of the subjects and the duodenal contents collected for one hour. After the ingestion of water, by the three subjects to whom no cornstarch was given, the duodenal contents were collected for two hours; in fractions of one hour each. The enzymatic activities of the two fractions were similar. The results obtained from this comparative study are outlined in the following table (Table IX). To the table are added the figures representing the enzymatic activities of duodenal contents collected after the ingestion of a mixture of olive oil and tap water. The experiments with the oil feedings were made on days different from those with the fasting duodenum and tap water feedings.

TABLE IX.
Enzymatic activities and amounts of duodenal contents collected from the fasting duodenum and after the ingestion of tap water, or of corn starch solution or of olive oil.

Subject.	Enzymatic activity.			Amt. in c.c.	Period of collection in minutes.	Kind of food ingested.
	Proteolytic in 5 min. NPN.	Lipolytic in 10 min. N/10 NaOH.	Amylolytic in 10 min. amyl. glucomase.			
McQ	2.5	0.4	1.8	56	30	Fasting duodenum
	3.8	2.8	1.1	97	60	50 c.c. tap water
	5.6	4.4	3.0	80	46	25 c.c. olive oil and 25 c.c. tap water.
Ought	1.8	0.5	0.3	15	30	Fasting duodenum
	1.5	0.1	0.0	52	45	50 c.c. tap water
	2.7	0.0	0.0	120	60	50 c.c. 0.5% cornstarch
	5.7	3.5	2.5	100	60	25 c.c. olive oil and 25 c.c. tap water.
White	3.7	1.0	0.8	2	30	Fasting duodenum
	2.0	0.1	0.0	105	40	50 c.c. tap water
	3.3	1.4	0.2	80	60	50 c.c. 0.5% cornstarch
	6.0	4.0	4.3	100	60	25 c.c. olive oil and 25 c.c. tap water.
Brown	5.9	0.5	1.9	18	30	Fasting duodenum
	3.0	1.1	0.8	39	60	50 c.c. tap water, 5 gm. barium sulphate.
	3.9	2.4	4.5	120	55	10 c.c. olive oil and 40 c.c. tap water.
Denjar	1.9	1.1	1.9	25	30	Fasting duodenum
	3.0	0.5	2.0	60	60	50 c.c. tap water, 5 gm. barium sulphate.
	3.2	1.8	3.6	270	63	10 c.c. olive oil, 40 c.c. tap water.

In the above table (Table IX) comparison of enzymatic activities of the contents of the fasting duodenum and after drinking water shows that proteolytic activity was diminished in three and increased in two; lipolytic activity was decreased in two; amylolytic activity was diminished in four and slightly increased in one. In duodenal contents derived from cornstarch proteolytic activity was increased in one and decreased in one and the same held true for lipolytic activity. Thus, after the ingestion of water or weak cornstarch solution the degrees of action

of the various enzymes present in the duodenal contents may be diminished or increased, as compared with the activity of those present in the fasting contents. However, after the ingestion of olive oil degrees of action of all these various enzymes were increased in the contents of each subject. These findings are portrayed in the following table (Table X). To the table are added the minimum and maximum figures for enzymatic activities after the ingestion of casein or edestin by four of the subjects.

The findings in Table X show: 1, that the en-

TABLE X.

Minimum and maximum enzymatic activities of fasting duodenal contents and of contents derived from water, from 0.5 per cent. corn starch solution and from olive oil.

Kind of food ingested.	Enzymatic activity					
	Proteolytic in mgm. NPN.		Lipolytic in c.c. N/10 NaOH		Amylolytic in mgm. glucose.	
	Min-imum	Max-imum	Min-imum	Max-imum	Min-imum	Max-imum
Fasting duodenum	1.2	8.0	0.0	2.7	0.3	6.7
Water (50 c.c.)	1.5	3.6	0.1	2.8	0.0	1.1
Cornstarch (50 c.c.)	2.7	3.3	0.0	1.4	0.0	0.2
Olive oil and water (50 c.c.)	3.3	8.7	1.6	4.8	2.0	4.6
Casein or Edestin (50 c.c. bulk)	3.3	4.9	1.4	3.2	1.0	3.6

zymatic activities of duodenal contents derived from water or cornstarch solution are comparable to those present in the fasting contents; and 2, that much greater minimum degrees of enzyme action were present in duodenal contents collected after the ingestion of olive oil, of casein and of edestin.

A study of the enzymatic activities and hydrogen ion concentrations* of duodenal contents

collected over hourly, and in some instances 15 minute periods, was made. The collections were carried out for four hours with each subject. For the purpose of this study five subjects were fed a mixture of milk, cottage cheese and 40 gms. barium sulphate, and two subjects 20 per cent. cream and 40 gms. barium sulphate. Each meal consisted of a volume of 300 c.c. The minimum emptying time of the stomach was about four hours, so that each specimen of duodenal contents was collected while food was passing out of the stomach. Within a few minutes after a subject had ingested a meal, deeply bile colored duodenal contents were returned through the tube; and these contents contained barium and food in easily demonstrable amounts. More or less food and barium were obtained in all the duodenal contents collected after the ingestion of these meals. In three subjects the contents collected during the first hour were fractioned into four parts, each part covering a period of 15 minutes. The results obtained in this series of experiments are outlined in the following table (Table XI).

Study of Table XI shows that the enzymatic activities were generally comparable to those in duodenal contents obtained during the second

TABLE XI.

Enzymatic activities and pH of duodenal contents collected over periods of 15 minutes and one hour, after the ingestion of milk and cottage cheese and of cream in volumes of 300 c.c.

Subject	Proteolytic activity expressed in mgm. nonprotein nitrogen in specimen collected during				Lipolytic activity expressed in c.c. of N/10 NaOH in specimen collected during				Amylolytic activity expressed in mgm. or glucose in specimen collected during				pH of specimens collected during				Kind of food ingested
	1st hr	2nd hr	3rd hr	4th hr	1st hr	2nd hr	3rd hr	4th hr	1st hr	2nd hr	3rd hr	4th hr	1st hr	2nd hr	3rd hr	4th hr	
A	3.9*				2.6*				2.7*				6.3				Milk, water and cottage cheese
	2.9*				1.5*				1.6*				4.6				
	1.0*				0.0*				0.6*				4.1				
	2.4*	3.3	2.3	2.4	1.4*	2.8	1.0	1.4	1.4*	2.1	0.6	1.0	4.3	5.0	5.6		
	3.0*				1.9*				1.3*								
B	3.4*				2.0*				1.0*								" " "
	1.7*				0.4*				0.7*								
	3.0*	4.2	5.2	5.2	1.6*	2.4	1.7	1.6	1.6*	1.1	1.6	2.3	6.4	7.1	7.0		
	4.6*				2.4*				3.4*								
	5.0*				2.6*				2.7*								
C	5.0*				3.0*				3.4*								" " "
	5.1*	4.0	4.2	4.7	2.6*	2.1	1.4	1.6	3.4*	2.0	0.9	1.6					
	5.9	2.7	6.1	6.7	2.0	1.0	1.8	1.6	1.7	0.6	1.8	4.0	6.1	4.6		4.0	
	3.8	5.2	4.4	6.5	1.9	1.7	2.0	2.9	1.1	1.9	1.4	1.4					
	3.4	3.0	3.0	5.6	3.0	2.3	2.8	2.2	1.9	1.0	6.4	2.4	5.1	6.1	5.8	6.6	
D	5.9	2.7	6.1	6.7	2.0	1.0	1.8	1.6	1.7	0.6	1.8	4.0	6.1	4.6		4.0	
E	3.8	5.2	4.4	6.5	1.9	1.7	2.0	2.9	1.1	1.9	1.4	1.4					
F	3.4	3.0	3.0	5.6	3.0	2.3	2.8	2.2	1.9	1.0	6.4	2.4	5.1	6.1	5.8	6.6	
G	4.6	4.1	2.8	3.6	5.9	3.0	2.3	8.9	3.6	3.0	2.2	6.6					
20 per cent cream																	

* Specimens collected over 15 minute periods.

stage of collection, after feeding the pure food substances (see Table IV). The enzymatic activities of the 15-minute specimens were comparable to those of the succeeding hourly collections, except for the third 15-minute specimens in subjects A and B. These two specimens were grayish instead of yellow in color, which showed a considerable dilution with material from the stomach; and this undue dilution explains the

low degrees of enzyme action present in the specimens. The same type of enzyme varied moderately in the degrees of its action in the different hourly specimens of duodenal contents from the same subject, but there was no regular manner in which the variations occurred; that is, there was no systematic increase in the enzymatic activities from the first to the fourth hours, except for the proteolytic activity in subjects B, and E.

The findings discussed in Table XI show that the enzymatic activities of duodenal contents, as

* Hydrogen ion concentrations were determined by a potentiometer constructed by the authors under the direction of Dr. Bovie, of the Harvard Cancer Commission. Dr. Bovie's quadrant electrometer was used.

estimated under the experimental conditions used, remain relatively constant for each type of enzyme as long as the stomach is in the process of emptying itself of food. From this finding it is inferred that the amounts (concentrations) of the enzymes remained relatively constant.

The hydrogen ion concentration determinations demonstrate that no relation existed between the degrees of acidity of the duodenal contents and the degrees of enzyme action.

DISCUSSION.

Enzymes present in duodenal contents may be derived from the pancreas, from the stomach, possibly from saliva and perhaps from duodenal mucosa. However, the methods used in the work here reported, when applied to the study of enzymatic activities of duodenal contents derived from patients,* show that all but very small degrees of enzyme action are absent when diseased processes have excluded pancreatic secretion from the duodenum. Thus, the enzymes demonstrated by these methods probably originate almost exclusively, if not entirely, in the pancreas. For this reason demonstration of enzymatic activity in duodenal contents indicates the presence of pancreatic secretion; and in the discussion of the work here reported it will be assumed that the various enzymatic activities demonstrated represent the action of enzymes secreted by the pancreas.

In patients* with complete obstruction to the common bile duct it has been found that the absence of bile does not demonstrably influence the activity of enzymes of duodenal contents as estimated by the procedures employed. Furthermore, addition of human bile to duodenal contents did not increase the activities of the enzymes, as demonstrated by the methods used. Theoretically, this is what would be expected with the methods, in view of the physical conditions under which the enzymes act. Because of these findings it is considered that the presence of different amounts of bile had a negligible influence on the activities of the various enzymes, as determined by these methods.

The term "fasting" duodenal contents designates the contents obtained from the duodenum about fifteen hours after the last ingestion of food and about nine hours after the last drink of water. But in taking the duodenal tube subjects swallowed much saliva; and it is also well known that the normal fasting stomach contains more or less acid secretion, cellular debris and mucus. Undoubtedly the stomach throws these materials over into the duodenum, so that a truly fasting state of the stomach and duodenum was not present during the course of the experiments here reported. Just what rôle the presence of these materials, or of the tube, in the duodenum played in the production of the presence of enzymes in the duodenal contents, was not deter-

mined. All that can be concluded is, that, under the experimental conditions here reported, proteolytic and amylolytic activities were always present in duodenal contents; while lipolytic activity was occasionally not demonstrable.

Enzymatic activities of duodenal contents obtained during the third stage of collection (Table III) were generally comparable to those obtained in fasting duodenal contents (Table I). It is considered that not infrequently the stomach had emptied itself of food during the second stage of collection; so that during the third stage the contents collected were often fasting contents. However, many observations* show that the normal stomach empties at different rates in different persons; and it was demonstrated that the stomach, during the experiments here reported, was not always empty at the time of the third stage of collection. Thus, at times the duodenal contents collected during the third stage represented the same conditions as were present during the second stage of collection; and under these conditions the enzymatic activities of the third and second stages were always found to be comparable.

It will be noted that the fasting duodenal contents at times showed degrees of enzyme action comparable to those found in duodenal contents obtained during the second stage of collection or after the ingestion of food mixtures of 300 c.c. volume (compare maximum figures of Table V and figures of Table XI with those of Table I). But the fasting contents were relatively undiluted, while those collected after the ingestion of food were diluted with bile and gastric chyme. Amounts of the latter were particularly large after the ingestion of meals of 300 c.c. volume, as judged both by the quantities of duodenal contents collected and the amounts of barium seen to be ejected from the stomach into the duodenum when observed through the fluoroscope. For this reason the enzymatic activities found in duodenal contents during the time the stomach was emptying itself of food represented greater concentration of enzymes than was present in the fasting duodenal contents.

During the second stage of collection the stomach was emptying itself of food, and duodenal contents obtained during this stage showed minimum degrees of enzyme action much greater than minimum degrees demonstrated in duodenal contents collected over other periods (Table V). From this it is concluded: 1, that during the second stage of collection increased concentration of enzymes was present in the duodenal contents; and 2, that during this stage the effect of the ingestion of food on pancreatic activity is shown. In other words, the findings show that the presence of food in the stomach and intestines in some way brings about the stimulation of the secretion of pancreatic juice.

Evidence of pancreatic stimulation was much less pronounced after the ingestion of water or

* Unpublished observations.

* Unpublished observations.

weak cornstarch solution than after the ingestion of foodstuffs (see Table X). Water¹⁷ and cornstarch solution stimulate the secretion of acid gastric juice; so that after their ingestion acid fluid was ejected from the stomach into the duodenum. Because of this it is concluded that something more than the mere ejection of acid gastric contents into the duodenum is necessary to stimulate materially pancreatic secretion.

Not only was it demonstrated that food substances stimulate pancreatic secretion, but it was also demonstrated that lipolytic activity was greatest after the ingestion of olive oil, less after protein and least after carbohydrate (Tables VII and VIII). Furthermore, duodenal contents obtained after the ingestion of oil showed greater degrees of all types of enzymatic activity than did contents derived from protein. This last statement holds true for duodenal contents derived from four of the five subjects on whom these experiments were carried out (Tables VII and VIII). In the fifth subject the duodenal contents showed the greatest degree of lipolytic activity after the ingestion of oil, but proteolytic and amylolytic activities were comparable to those derived from a meal of edestin. Nevertheless, the findings show the existence of a relation between the degrees of enzyme action and the kind of food ingested.

It was found that lipolytic activity was diminished or absent after the ingestion of certain mixtures of the pure foodstuffs (Table IV). There is no reason to doubt that these mixtures called forth secretion of HCl in the stomachs of the subjects. At any rate, it was proved that the food mixtures were ejected from the stomach into the duodenum; and the acid fluid normally present in the fasting stomach would necessarily, also, be thrown over into the duodenum. If HCl were the principal factor in bringing about the secretion of pancreatic juice, it seems strange that at times it would fail to do so in normal persons. On the other hand, it is conceivable that the physical state of foodstuffs mixed with a gelatinous substance like arrowroot starch paste might be such as to render their digestion very slow. As a result little or no pancreatic secretion might be stimulated and only the activity of enzymes already present in the fasting duodenal contents would then be demonstrable. This may be the true explanation of the findings in the duodenal contents derived from the mixture of arrowroot starch, edestin and olive oil and from the mixture of arrowroot starch and edestin (see Table IV).

The findings in Table XI demonstrate: (1) that the enzymatic activities of duodenal contents did not show systematic increase as digestion progressed; from this it is inferred that the relative concentration of enzymes present did not increase proportionately. (2) the findings also show that no relation existed between hydrogen ion concentration (degrees of acidity in the

duodenum) and the concentration of active enzymes in the duodenal contents.

It was found, after the ingestion of pure foodstuffs and the appearance of the latter in the duodenal contents, that from seven to forty-five minutes elapsed before an increase in enzyme action was noted. This observation is most easily made after the ingestion of olive oil and tap water. The oil will be collected constantly over periods varying from ten to forty-five minutes before an increase in enzymatic activities and the change to the dark bile occur. These observations show: (1) that after the appearance of pure foodstuffs in the duodenum there is a latent period before the flow of enzymes and bile is stimulated; while (2) the finding that the flow of bile and enzymes was coincident suggests a common stimulating factor.

During the period of latency four phenomena were probably occurring: (1) an increase in the hydrochloric acid concentration of the stomach contents; (2) the actions of gastric and salivary enzymes on foodstuffs present in the stomach; (3) the action of duodenal enzymes on foodstuffs ejected from the stomach into the duodenum; and (4) the absorption of the products of digestion. What effect increase in gastric acidity, which occurs as digestion progresses, had on duodenal acidity, was determined after the ingestion of milk and cottage cheese and after cream. No effect was found (Table XI). The significance of the absorption of products of food digestion will be discussed later.

The findings: (1) that something more than the mere ejection of acid gastric contents into duodenum was necessary to stimulate demonstrably the secretion of pancreatic juice, and (2) that no relation existed between the degrees of acidity (hydrogen ion concentrations) and the action of enzymes in duodenal contents are evidence that the acidity of duodenal contents was not the essential factor in bringing about the stimulation of the secretion of pancreatic juice. On the other hand, the findings: (1) that food in some way stimulated the secretion of pancreatic juice; (2) that a relation existed between the degrees of enzyme action and the kinds of food ingested; (3) that a latent period existed in which foodstuffs could be digested and absorbed; and (4) that water was a much less potent pancreatic stimulant than food, although water stimulates a normal gastric acidity, present evidence that the products of food digestion are an essential factor in stimulating the secretion of pancreatic juice.

The above interpretation of the findings in the experimental work here reported do not agree with the view of Pawlow, except for lipolytic activity. They do not uphold either the secretin theory of Bayliss and Starling or the hypothesis of a nervous mechanism as the most potent factors in the stimulation of the secretion of pancreatic juice. The remaining most probable possibility is that the products of the digestion of

food are the most important factor in stimulating the pancreas to secretory activity.

The disagreement with Pawlow's contentions may possibly be more apparent than real. In the first place Pawlow worked on dogs; and a pancreatic regulatory apparatus may exist in dogs which is different from that of man. In the methods used by Pawlow for demonstrating enzymatic activity the substrates acted upon by enzymes were placed directly into pancreatic juice. The hydrogen ion and buffer conditions of the various specimens of pancreatic juice may have been such as to give results justifying Pawlow's conclusions. But the physical chemistry of Pawlow's methods is so grossly erroneous that an interpretation of results obtained by them is well-nigh impossible.

The experiments of Bayliss and Starling consisted of intravenous injection into animals of hydrochloric acid extracts of duodenal mucosa. In this way pancreatic secretion was stimulated. But the work of von Fürth clearly demonstrates that it is not necessary to assume the existence of "secretin" to explain this stimulation. This investigator, among others, has demonstrated that various well-known chemical substances normally present in duodenal mucosa will produce such a stimulation. Furthermore, the maceration of duodenal mucosa and its extraction with hydrochloric acid might very well form compounds (due to decomposition of proteins, etc.) similar to those occurring during digestion; such compounds may play a rôle in the stimulation of pancreatic juice when injected into the blood stream of an animal. In other words, the chemistry of the work of Bayliss and Starling was such as not to justify the drawing of far-reaching conclusions from their observations.

Experiments have been repeatedly carried out by the present authors in which water, N/20-HCl, glucose solutions and olive oil have been introduced directly into the duodenum of men. The results were the same as those obtained after the ingestion of these substances by mouth. Certainly these substances were introduced into the duodenum in an inert chemical state, except the N/20HCl. This contradicts the often-quoted statement that such substances do not stimulate pancreatic secretion. From these experiments it was concluded that whenever any harmless liquid is introduced into the duodenum of man intestinal digestion and absorption begin.

The absorption of materials present in the duodenal contents and those coming into the duodenum from the stomach (for in man the introduction of fluid into the duodenum always starts up the ejection of stomach contents into the duodenum, as the authors have repeatedly demonstrated) could explain the often-quoted experiment of Popielski.¹⁸ In this experiment hydrochloric acid solution was placed in the duodenum of one dog, whose blood supply was connected to that of another dog; as a result pancreatic juice was secreted by the latter. The contamination of the original duodenal material

with gastric contents introduces an element of uncertainty, as digestible material thus present would give rise to products analogous to those produced by food digestion. In fact, all the work supporting the "secretin" theory furnishes only indirect evidence of the correctness of that theory; while phenomena urged in its support can all be explained in other ways by using well established facts as a basis.

This discussion is not intended to belittle the excellent work of two such competent experimenters as Drs. Bayliss and Starling. But the purpose is to emphasize that "secretin" remains a hypothetical substance. Furthermore, it should be emphasized that the work on "secretin" has all been carried out on the lower animals, and whether or not the same experimental results would be obtained in man has not been determined.

The principal conclusions reached in the above discussion may be summarized as follows:

1. The findings showed that the presence of food in the human intestines in some way stimulated the activity of the external secretory function of the pancreas. They indicate that the principal factor in producing this stimulation was the absorption of the products of digestion rather than the acidity of the gastric chyme.
2. Lipolytic activity of duodenal contents was always, while proteolytic and amylolytic activities were almost always, greater after the ingestion of olive oil than after the ingestion of protein or carbohydrate food. From this it is inferred that olive oil was a more powerful stimulant to the activity of the external secretory function of the pancreas than were the other types of food.
3. Water was a less potent stimulant of external pancreatic secretion than were food substances.
4. After the appearance of food substances in the duodenum there was a latent period before the flow of enzymes and bile began.
5. The time coincident of the onset of the flow of bile and pancreatic juice suggests a common stimulant.
6. Under the experimental conditions employed the fasting duodenal contents contained both enzymes and bile pigments.

We wish to express thanks to Dr. Lafayette B. Mendel for helpful criticism of the preliminary studies on which this work was based; and, also, to Dr. A. W. Rowe for his valuable coöperation.

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to have institutions for this sort of thing where a man can be taken care of during the period of convalescence with a view to his rehabilitation to industry.

THE STATE INSTITUTIONS.

DR. JOHN H. NICHOLS: In the Industrial Departments of the State Institutions we have the inmates engaged in carpentry, basket making, weaving, mending, farming, etc. The work is assigned: hours of work are fixed. Industrial employers hire men who are 75 percent plus efficient, but men who are only 50 percent efficient are outcasts. It seems to me that the problem of finding a market for their wares is harder than finding work for the inmates.

I would present two viewpoints: The first, the more difficult, is to promote successfully a "back to the country," "back to the farm" movement. Even the cripple insists on going back to the city. On the farm there is always something that the cripple can do and be self-supporting. But now the unfortunates and crippled can scarcely earn a livelihood on the farms in this Commonwealth. Movements for small farms and gardens should be promoted and reclamation of waste land. The physicians could then send patients out on farms for rehabilitation where they could help to raise farm products. We might call them "heliotherapy" farms.

The second viewpoint which especially bears on the problem is a city problem. Why not erect a building in the city for these cripples who are loafing or selling pencils on the street? Call it a service shop or accommodation shop where cripples can go and do repair work and mending and all sorts of light work. Have a building centrally located which could serve as an employment office and as a clearing house for the sale of articles made by cripples.

CERTAIN LEGAL ASPECTS.

JOSEPH A. PARKS, ESQ.: Rehabilitation is the biggest problem under the Workmen's Compensation Act, bigger than the matter of compensation. I want to take up the problem of the cripple after he has left the hands of the doctor. He has got stale. Take the case of a man who has lost an arm, a hand or fingers—how are you going to get such a man back into industry? You can't unless you have the whole-hearted support of the employers of labor in this Commonwealth. Few employers are kind enough to employ such men. The result is that the cripple drifts about from job to job, his physical condition getting worse. Employers should coöperate with the Board and with the doctors. The sum of \$7,000,000 is paid out every year for compensation insurance and for doctors' bills, and there is no reason why \$1,000,000 cannot be clipped off that sum by the proper coöperation on the part of employ-

Suffolk District Medical Society.

MEETING ON "REHABILITATION."

The Suffolk District Medical Society held a meeting on "Rehabilitation" at the Boston Medical Library on November 22, 1922. The program was arranged by Dr. Hilbert F. Day, and the following speakers took part:

DR. F. J. COTTON, Boston: Reconstruction or rehabilitation, which was brought into prominence by the war, is being carried over into civil life and industry. It is a field the importance of which is just beginning to be recognized and its scope broadened. The problems are similar to those encountered in the war, namely to save the derelicts of industry. Everybody dealing with the subject from the surgical side is impressed with the fact that the cases are due to bad surgery and are avoidable. What we ought to have is a better type of surgery which will make correcting the mistakes of others unnecessary. For instance, cases of fracture of the os calcis which go through the ordinary routine and are crippled, are picked up in the reconstruction work and brought back to normal. Then there are cases of Colles' fracture which often have a permanent partial or total disability. We can handle those cases late and straighten them out very well, although it should be unnecessary. Of course, results obtained late are not comparable to results at the time of injury.

An important part of the work of rehabilitation is bridging the patient over from the time of injury to his return to the pay-roll. The average surgical case receives surgical treatment only and is discharged unfit to go back to work. The medical man should be called in, also the orthopedist, the physiotherapist and the man who knows occupational therapy. We need team work. Take, for example, a man of fifty with a fractured femur or any case requiring a long period of treatment. Such cases are not cases for surgical reconstruction alone but cases for team work rehabilitation. The success of rehabilitation depends on proper team work. This is purely a team work proposition. My own feeling is that we are going

ers, and at the same time have a reduction in the amount of premiums paid. As a business proposition we can demonstrate to employers that an injured workman isn't a liability but an asset and will do just as much work if given an opportunity and the right kind of sympathy. We want the employers of labor in this State to coöperate with us in this great movement.

PHYSIOTHERAPY.

DR. FRANK B. GRANGER, Boston: From a consideration of the civil army of the industrially incapacitated the high lights are: 1. The necessity of team work between the branches of surgery and medicine, including the laboratory social work and occupational therapy; 2. The importance of functional cure or restoration; 3. The economic gain due to shortening the period of disability; 4. The restoration to productive, remunerative work of many who would otherwise be permanently crippled and a burden to the community. All measures of value should be employed. Active exercises, in-door and out-door games, and passive exercise in the form of massage; physiotherapy, hydrotherapy, electrotherapy and heliotherapy—one or more combined where indicated.

Measures used—type of current: 1. Diathermy or internal baking. This modification of the high frequency current is useful where it is desired to secure deep seated effect on the tissues. 2. Ionization—this is analogous to commercial electroplating and is a means of introducing certain chemical salts. 3. Sinusoidal current—this is of value in restoring muscle tone. 4. Galvanism—this is useful for relief of pain and for nerve stimulation. In hydrotherapy the whirlpool bath is efficacious. Instead of medical massage the use of competitive games has proved of value in many conditions such as paralysis, hysteria, neurasthenic states, and certain types of cardiac disease. In fractures use the high frequency current at the time of complete union. In non-union use diathermy. For adherent scars use radiant heat. Arthritis—use radiant heat. Contusions respond to diathermy and to the Bristol coil. Physiotherapy should be carried out under the direction of trained technicians and is a challenge to the various cults.

OCCUPATIONAL THERAPY.

DR. JOHN D. ADAMS, Boston: Occupational therapy is what the name implies—the idea of occupying the patient in the hospital wards in order to hasten his convalescence, restore his function, and mentally restore him to his former state of mind. It is not a diversion but a treatment applied in conjunction with the doctor. What is the present status of occupational therapy? A school was organized in Boston,

graduated 100 occupational therapy aides, girls, who were sent to France, who demonstrated their efficiency. The period of convalescence of the patients over there was reduced 30 percent. The school was perpetuated, a board of managers was organized. These girls, who are students of the occupational therapy school, are taken from all walks of life. An educational standard is required. These girls are taking it up as a means of livelihood. The course is twelve months. Today there are seven well established, well recognized schools in the United States. These girls go into the hospitals and teach the patients the various arts and crafts, among which are toy making, jewelry making, basketry, etc. These girls teach the patients to make these products. What is done with the products? We have established a bureau in Boston on Berkeley Street, where the products are sold. The bureau charges a commission of 15%. A State Society has been organized. Dues are \$3 a year. We have at the present time about 300 members. Our State director, Miss Robeson, sent out questionnaires to all the hospitals in the State. Only 57 replied. Of those 57 only 32 make active use of occupational therapy at the present time.

DISCUSSION.

DR. FRANCIS W. ANTHONY, Haverhill: There are two methods of solving the problem, the ideal and the practical. We have to make our work conform to the practical. The ideal result is economic, functional restoration not necessarily to a point beyond the normal point of the individual. I claim that to determine this we must have more than a knowledge of the man's injuries, more than the surgical or medical picture. We must have a knowledge of the individual and know his mental status. We must know his mental ability, his experiences, his personal reactions, his environment; we must have all that combined with the knowledge of the surgical condition, then we can treat the individual. This means group study which must be centrally controlled. After your study is completed, what can be done for the patient? He may be helped at home, especially if near a central station; he may be helped in a general hospital or in a special hospital. I believe that the best place is a special hospital, a special hospital not under State or national control, especially not politically controlled,—the worst kind of control,—but a hospital especially endowed; that would be the ideal. What is practical? A reference board. There you enter medical politics. It seems to me that the thing must now function through the Accident Board. The reference board, taking the case up, would decide where to send the case to obtain the best results.

THE INDUSTRIAL SIDE.

DR. FRANCIS D. DONOGHUE, Boston: When Mr. Parks says that \$1,000,000 can be clipped off in premiums, I want to make it clear that he means \$1,000,000 paid by the employers and not \$1,000,000 off the doctors' bills. The Compensation law is a compromise between the ideal and the possible. The insurance companies have seen that adequate medical treatment is the best kind of compensation. I have no doubt that accident cases are treated better than the average hospital case. The family doctor should come in. The compensation case is treated two weeks and, if it is an unusual case, longer, and the insurance companies usually pay for a longer medical treatment. The case that comes to the Industrial Accident Board is 40 years old, the average case, and our replacement doesn't require elaborate therapy because the men want quick replacement and not rehabilitation.

CERTAIN MEDICAL AND MENTAL ASPECTS.

DR. E. K. BURBECK (ms.): The physician should understand more than pharmacology; he should know functional diseases, inherited tendencies, effects of environment and development. Inherited tendencies we cannot change. To understand childhood training and environment is to understand some mental conditions in adult life. From the mass of endocrinology stands out the effect of secretions on the body growth. Faulty bodily mechanics has been shown to produce definite medical defects in the child as well as in the adult. Deficient muscular tone can be counteracted and improved while the patient is in bed. Muscular and breathing exercises are necessary, especially in digestive disturbances. A patient should not be allowed to get up out of bed with his muscles flabby. We should pay particular attention to the patient's morale and give encouragement; also gauge the patient's powers by a study of the various organs and by blood pressure measurements, by metabolism, etc.

DR. JAMES W. SEVER, Boston: In regard to orthopedic surgery—the pathetic side of it is that most of the cases which require orthopedic treatment are cases we should never see, due to the fact that preliminary reconstruction surgery has not been properly carried out.

There are four or five general conditions which all of us dealing with the rehabilitation or reconstruction of a disabled person should know. Classified under five headings they are: 1. The physical condition, that is, we should know the physical condition of the individual and his capacity; 2. The mental condition, whether his mental attitude is right or not, and his capacity; 3. His economic standing and responsibility in the community. 4. His training, either his physical training or his training

in regard to the industry in which he is working, for the possibility of leading up to a suitable employment either in good health or debilitated health; 5. His debilitated state. Speaking of reconstruction, I didn't quite understand Mr. Parks. He said that when they left the hands of the doctors they needed a helping hand. Just what he meant, I don't know. I believe in two things, the ideal and the practical—the possible. I think we should give adequate treatment in the hospitals and after they leave the hospitals. Patients are put into the hospitals with the idea of getting them out. They should be followed up from start to finish as are private patients. It would be a tremendous expense. The insurance companies have no follow-up; they are afraid to get into it because of the expense it would involve. The term "replacement" in industry I think is better than "rehabilitation."

Speaking of the "back to the farm" movement, I have a patient, a boy with infantile paralysis, who works on a farm and runs a tractor. I think a lot of this replacement comes down to the old sergeant's point of view, which is just "plain guts."

DR. ROBERT J. GRAVES, Concord, N. H.: Reconstruction on the Boston & Maine was about to be born when the strike hit us and had to lie dormant. We find it hard to concentrate patients in one place, to take them a distance from their homes. We are forced to get along with the best aides we might have. One of our principal difficulties arises with cases in Boston. A man is more fortunate if he doesn't get injured in Boston for he will have more individual attention and care. We don't have the difficulty of replacing men because we have a good many types of job. Our difficulty lies in what the unions will let us do. We are finding that the time of disability is very much shortened over what it was when the old system was in vogue before the strikes. The new men do not lay off as long as the older men did for similar injuries.

DR. A. H. PIERCE, Boston: Dr. Anthony spoke about politics. Politics doesn't enter into the Veterans' Bureau at West Roxbury. At West Roxbury we have nervous and mental cases, and our problem is sometimes one of custodial care. A patient is given a thorough overhauling, a thorough history is taken, and a thorough mental examination is made and a thorough social service history is obtained. With those things the day's routine is planned. It comprises a whole day of occupation, half of which is occupational therapy, so-called, and the other half is exercise and amusements which run into the evening. The occupational therapy consists of the ordinary run of basketry, toy making and weaving and some painting. It is

done partly in the crafts shop and partly in the wards. In addition they have vocational training which consists of education. The whole scheme is therapeutics, but in so far as it may enter into vocation later, it is planned so that the subjects of the grammar and high schools are taught. Draughtsmanship is taught and agriculture and various other subjects. We have eight or ten acres, and I am trying to get a green-house. In addition we have an up-to-date equipment for physiotherapy. Then there is the personal touch of the ward surgeon with the patient. It is fundamentally psychoanalysis, although I don't like to use that term.

DR. JOHN BRYANT, Boston: I have tried to find out how this convalescence program can be worked out better in civil life. The time factor is important, whether we are working on the patient on a ten-day basis, or whether the changes involve weeks or months of treatment. The only solution is a series of convalescent hospitals where all these different factors can be run together simultaneously with a director of the group who is familiar with all the possibilities of the various parts of the group.

About occupational therapy, the emphasis has been put upon arts and crafts. Arts and crafts is only the elementary phase of the occupational therapy work, and if one stops at that, one does not use all the efforts. If a patient gets through the acute stage, the arts and crafts stage is desirable for the first process of interesting the patient in his surroundings again; but that must be succeeded by a stage in which there must be something more serious to be considered by the patient who must do some work in the world. The highest phase of occupational therapy must be connected with the patient's mental aspect and the job he is going to do when he is discharged, and the biggest thing an occupational aide can do is to give the patient something which will make him better able to earn a living and make him feel that his hospital experience was not a waste of time. I saw in the Army a great many men who were raised from the labor status to an artisan status. The work which I found most valuable and most easily adaptable is apparently paid little attention to, and that is straight academic work; and it was extraordinary to find how glad these fellows were to choose academic work. At Upton the cases were cases of osteomyelitis. I suggested that the work be directed to the patients who couldn't get out of bed, and suggested that the aides should offer to the patients the choice between arts and crafts and academic work. They all chose some book work, some study that would do them good. There were over 400 men working their heads

off trying to learn something that would enable them to earn money when they got out.

Previous to the meeting of the Suffolk District Medical Society, the Medical Advisory Committee, appointed to assist the Industrial Accident Board in dealing with purely medical questions, met at the State House for the purpose of conferring with physicians who might want to bring up matters affecting the work done by physicians under the laws governing professional service rendered to injured employees. Also a number of representatives of insurance companies were present by invitation.

Dr. F. J. Cotton, chairman, called the meeting to order and explained the status of this committee, which is that of an unofficial body serving without pay, designed to represent the profession and assist the Industrial Accident Board. The members of this committee were recommended by the medical societies. Dr. Cotton spoke of the general effect of the application of laws, in rehabilitation of injured workmen, and felt that progress is being made and asked the physicians present to submit any evidence of unsatisfactory administration of the Industrial Accident Act, or to ask questions about any doubtful points.

Dr. Jakman of South Boston reported that whereas he formerly was called upon to treat many injured workmen, that now he sees very few and felt that patients were being diverted away from their usual medical attendants and sent to physicians in the employ of the corporations or the insurance companies. Dr. Gunning of Fall River felt that physicians should receive more consideration and that there is a somewhat general feeling of disappointment among the physicians of that city because of the employment of nurses to the exclusion of physicians, and also that the selection of physicians had not always been judicious. He criticised the custom of sending nurses to the families of the employees and felt quite sure that doctors were being deprived of legitimate opportunities and further that when doctors are employed that the fees were inadequate and hence a corresponding quality of service was given. One specific criticism of the work done by doctors was that there was a common distribution of aspirin for most troubles and if relief did not follow the aspirin treatment it was supplemented by a dose of salts. These conditions constituted a problem for the medical profession rather than for the Legislature. He affirmed that the insurance companies are destroying medical practice by the employment of unqualified men and paying low fees.

A member of the committee asked for specific evidence that nurses are practising medicine in Fall River, and Dr. Gunning answered that they practically do and that there is evidence in support of this claim. He reported a specific instance of abuse on the part of a mill official

who, on finding that an operative had been to a physician not approved by the management, said that if the operative persisted in this course that he would be discharged. Mr. Holland of Malden reported that nurses are doing the work that should be done by doctors and he felt that the work should not all be done by the selected doctors and that the profession should use its influence in protecting the unselected practitioner.

Dr. Croft of Greenfield reported that workmen were given cards with the names of selected doctors printed thereon, and after the district society had taken the matter up and published information, setting forth the freedom of choice provided for the employee under the law, there was some improvement, but that there is yet much to be done, for financial conditions have changed and that personal freedom should be guaranteed.

Dr. Cross of South Boston felt that the insurance companies do business on wholesale plan and that this condition is responsible for poor work. If a patient reports that he is under the care of a doctor of his own choice that doctor is displaced. He affirmed that in one place a nurse with six months' training was attending cases and is now teaching another nurse to do this class of work.

Dr. Donald Baker of Boston spoke of the methods in vogue in his clinic in dealing with accident cases and asserted that he had no desire to pre-empt the field or to coerce the patient. He felt that among other things the fact that employers often did not provide work for the employee when ready to return to his job is a matter that should be adjusted. So far as he is concerned every effort is being made to keep the patient and his family doctor in their accustomed relation.

Dr. Gunning felt that there could be no objection to the employment of those physicians who did good work, but Dr. Duff of Charlestown endorsed the statement of a previous speaker relating to the directions on the circular given to employees, directing the employment of selected doctors. A physician employed in a candy factory said that she had two good nurses working under her direction and that the nurses desire to know just what the doctors want the nurses to do, because the nurses feel concerned lest they may unwittingly antagonize the doctors.

Mr. Marston, a representative of the American Mutual Insurance Company, claimed that the company is bound under the law to furnish medical care and it is up to the employee to accept.

Dr. Charles L. Seudder, in responding to Dr. Cotton's invitation to speak, said that there is a definite feeling that the relations of the injured employee, the insurance companies and the employers are in an unsettled state. He felt that this class of injuries calls for well-

trained men and that the insurance companies are acting as business organizations from a business point of view and therefore are desirous of reducing the period of disability to the shortest possible time. He explained that the slightly different methods of well-trained surgeons would result in practically the same good results. In analyzing the results of treatment the insurance companies ask why in the same type of accidents one man recovers sooner than another, and why one man is out of work longer than another. These companies are looking for standardized treatment and they would probably find that it is less expensive in the long run to pay for adequate treatment.

Dr. Arthur Broughton reviewed some of the activities of the committee of which he was chairman and explained the difficulties encountered. He had tried to have the laws relating to accident insurance clarified in relation to disease modified by or coincident to accidents, the elucidation of the word "unusual" and revision of that part of the law relating to full treatment.

When these recommendations for improvement were presented to the legislative committee, although there was no apparent opposition, the committee report was "leave to withdraw." He explained that he had asked to have his committee dissolved because the work done was a waste of time. He felt that the medical societies have concluded that the attitude of the Industrial Accident Board has been reasonable. So long as such terms as "unusual" are allowed to remain in the law, there will be more or less trouble.

Mr. Linscott, a representative of the Employers Liability Company, said that the interests of the company and the patient are identical. Both want early recovery. The unfortunate position of the company consists in the "post mortem" analysis of the work done by doctors. Some doctors get the patients back into industry promptly and others get poor results, and it is a mistaken idea that the companies want the cheapest service, for poor service means extra compensation. The companies have created clinics only in the larger communities and these take the place of out-patient departments of hospitals, but no patients are forced to go to the company clinics, but the patients soon learn of the advantages of the clinics because of the better equipment than can usually be found in doctors' offices. All that is wanted by the companies is good service and the employed doctors are capable, and any capable doctor is acceptable in places where there are no clinics. It is a common custom to put the name of every doctor in a town on the card of instruction. The greatest trouble results from disinclination to accept the decree of the medical advisory committee and every means is taken to bring pressure to bear on the insurance company. Usually the relations of the doctor and

the insurance company are pleasant and the companies use every effort to dissuade patients from bringing suits against doctors. So far as his company is concerned, he felt that an amendment to the law which would provide for full attendance is desirable and further provision for authority authorizing the employment of competent physicians, for some ignorant workmen cannot exercise good judgment in the selection of a doctor. The companies want to have the patients in the hands of good doctors.

Dr. Ewing of Stoughton felt that it is an endless task to explain the features of the compensation law to patients and felt that it would be of great interest to know how much other people received through the operation of the law as compared with the money paid to doctors. He submitted the following statement:

According to the latest Annual Report of the Department of Industrial Accidents for the year ending June 30, 1921.

There are 36 insurance companies authorized to do business in Massachusetts under the Workmen's Compensation Act.

It appears that this form of insurance covers about 50,000 employers and 1,000,000 employees.

It also appears that among these employees there were 48,315 tabulatable injuries.

It also appears that there was paid in this one-year period, \$5,666,859.93: of this, \$1,639,670.49 for medical and hospital services; \$639,608.26 for fatal cases; \$3,387,581.18 for non-fatal cases.

My request is that the report should continue to show, if possible:

1. The total amount paid by the 50,000 employers.

2. The total amount paid the insurance agents, representing the 36 companies, for the service which they perform of selling compensation insurance to employers who are practically obliged, by the law of the State, to buy this insurance.

3. What portion of the total amount received from employers is returned in taxes to the State and Federal Government?

4. What remains in the hands of the insurance company?

5. Also, if it were possible, what it costs the insurance company to transact the business aside from the above items, leaving

6. The final profit which accrues to the 36 insurance companies.

All or any part of the above information would be of interest and eminently fair. The publication of merely a portion of the facts in the annual report leaves one, who desires only the truth, unsatisfied.

EDWARD H. EWING.

Stoughton, Mass.

Mr. Holland of Somerville felt that the general practitioner should give this work over to the clinics.

Dr. Gunning objected to some statements made by Dr. Scudder and the representatives of the insurance companies, for he felt that good judgment had not been exercised in the selection of the doctors in Fall River.

Dr. Broughton regretted that Mr. Linscott, of the insurance company, had left the meeting, for he did not feel at liberty to make certain statements in his absence, but hoped that Mr. Linscott would elaborate his plans at some future time.

Mr. Marston again spoke and expressed the opinion that physicians and the insurance companies are getting together and greater progress will be made if we work together. We must bear in mind that the law has been in existence only ten years and much had to be learned by experience, and experience is expensive. The former plan of getting medical service as cheaply as possible has been discarded. The good features of the law should be recognized, for now every mill employing 100 or more has to have a first-aid room, and whereas the legal profession has lost much the medical profession has gained a great deal in the aggregate.

Dr. Cotton explained that the trouble with the insurance companies had been ignorance and the trouble with the doctors had been inefficiency and the general practitioner cannot keep this class of work if unable to deliver the goods. The clinic will survive if it is efficient. The doctors must realize that insurance companies know a lot about doctors. A great deal has been accomplished and it must be recognized that this kind of work will go into the hands of those competent to deal with it and the mill carrying the financial burden will try to secure the best possible medical service.

Dr. Francis Donoghue asked for comments on the work done by the impartial doctors and explained the method employed in selecting them, which was very much like the plan suggested by a previous speaker.

Dr. Gunning thought that the impartial doctor should be appointed by the Governor, just as medical examiners are appointed.

Dr. Anthony of Haverhill spoke of cutting off compensation before the injured workman was fit to return to industry. This was explained as an infrequent occurrence in the ordinary machinery of business.

Dr. Jakmauh suggested more frequent consultations of the insurance companies with physicians and expressed the hope that publicity would be given to the whole subject through the columns of the BOSTON MEDICAL AND SURGICAL JOURNAL.

Dr. Cotton submitted the following statement:

It is my purpose, unless someone of the Accident Board objects, to bring forward the sug-

gestion which follows, for comment and discussion (but not for action), at the meeting November 22d.

That in all cases still under compensation after three months, brief reports be required to be sent in by the insurer or carrier to the Board; that in case any such reports seem to call for it, an examination and report shall be made by one of the Board's impartial physicians; this in order that

1. Conditions in the given case be definitely established early.

2. There may be a common understanding and agreement as to these conditions on the part of all concerned.

3. The Board may have records, at least of the more serious cases—as they should, beyond question.

4. The impartial physician, if called on, may do his part (acting as consultant as well as reporter) at a time when his work may help toward real results and recovery, instead of having him come in, very often uselessly, after many months, to take part in a case that has become merely a dispute.

This suggestion is offered with the purpose of helping all parties who are working together for more effective administration of the Act and it is hoped that some measure like this may bring about even closer co-operation between the interested parties.

The reasons for bringing forward this suggestion are, in the first place, that impartial examinations are unsatisfactory because necessarily one-sided; that they are professionally unsatisfactory in that the impartial, given no data, cannot do himself justice; in that they are, in the rule, so late as to be of no value, or little value, in the way of helping treatment.

Moreover, there is not a little dissatisfaction in various quarters, for various reasons, with the present arrangement.

Moreover, many patients are incapacitated longer than need be, because early treatment is not instituted.

Not often is this a result of reluctance of insurance companies to do the work. Much often cases are lost sight of because no adequate report is at hand or because it is not possible for the insurance company's examiner to reach the case; there would be no obstacle in the way of the Board's examiner.

It is thought that a good many hearings could be avoided under a plan like this, leaving more to be settled by simple conferences without medical dispute; unavoidable medical disagreement might under this plan be reduced to clean-cut issues and submitted after a Board hearing to a medical arbiter on medical issues only, an impartial agreed to by the Board, insurer, and the injured employee.

Subsequent to the open meeting the Advisory Committee met and endorsed the recommendations submitted by Dr. Cotton.

LEADERS ENDORSE CHRISTMAS SEAL SALE.

The Health Christmas Seal Sale of 1922 has been initiated with the encouraging approval of men well known to citizens of Massachusetts, including Major General Clarence R. Edwards, Eugene R. Kelley, M.D., State Commissioner of Public Health; His Eminence, Cardinal O'Connell; and His Honor James M. Curley, Mayor of the City of Boston.

WHAT THE HEALTH CHRISTMAS SEAL DOES IN MASSACHUSETTS.

Helps to support the National and State tuberculosis associations.

Supports the work of thirty county and city tuberculosis and public health associations affiliated with the Massachusetts Tuberculosis League.

Is helping to operate examination clinics in ten of the fourteen counties of the State, and a successful Seal Sale this year will make it possible to place examination clinics within the reach of every town in the State.

Supports twelve full-time expert field tuberculosis nurses and partly supports forty-three other public health nurses.

Supports seven summer health camps and two preventoria for delicate children and gives scores of other delicate children outings in the country.

Has helped to establish four open-air schools during the past three years.

Has helped to establish nutrition work in 100 cities and towns of the State.

Has promoted the Modern Health Crusade, which has enrolled over 300,000 school children in the formation of good health habits.

Has helped to establish dental clinics in fifty-three cities and towns of the State.

Finances the distribution of educational literature, posters, and pamphlets, and helps to conduct "Health Days" and "Health Weeks."

Maintains motion picture and marionette service and a Health Clown for promoting health education.

Publishes the *Health Journal* and promotes health education and interest in public health work through the press of the State.

Cooperates with other agencies in securing good health legislation.

Provides a clearing house for information regarding the organized fight against tuberculosis.

Provides material relief where that is necessary. The little Health Christmas Seal did it.

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THE PROBLEMS OF PSYCHIATRY.

THE attention of our readers is called to the article by Dr. Bronson Crothers in this issue, because it deals with a subject which should interest every general practitioner.

The problems discussed have been considered in several medical society meetings during recent years, but have not seemed to arouse great interest among physicians in general practice. The contention has been made more than once that the vagaries of childhood should be dealt with early in order to prevent morbid mental deviations, and since the regular family attendant is usually the first to observe such deviations, he should realize the importance of early treatment which should, in some cases, be applied to other members of the family as well as the child. The doctor in charge may be quite able to regulate the composite behavior of the family and prevent disaster if he will carefully study all the conditions, or determine the necessity of seeking expert treatment for a case which may be cared for more advantageously by another.

Unfortunately clear evidence of the development of serious mental or moral deviations is often lacking or difficult of interpretation, and it is incumbent on the physician to study this phase of practice just as much as he would prepare himself to detect other dangerous conditions or tendencies.

As Dr. Crothers plainly shows, the statements made by many writers puts the profession on the defensive for, if the oft repeated assertion that a large proportion of our insane population could have been cured by early treatment is true, we owe it to the state, as well as the individual, to prevent many of the tragedies of life.

Although psychiatry may be an undeveloped science, enough has been said and written to put us on our guard and lead to more definite interest in the subject. The majority may not be very much concerned in the controversies of the pioneers except so far as different views are suggestive, but we should endeavor to separate the wheat from the chaff, for out of all the complexities there will come recognized rules of procedure, since the interest of keen minds is now concentrated on the problems involved. Extreme and unsound views will undoubtedly be discarded. Other difficult questions have been solved and we can confidently expect that sane and patient students will clarify the present confusion and establish methods of approach, technique of procedure and give advice which will enable family physicians to deal constructively with indications of psychic disturbances.

The state has taken one forward step in the enactment of a law which obligates the Board of Registration in Medicine to incorporate into examinations questions relating to psychiatry. This, in time, will bear fruit.

Practitioners already registered may devote time to these problems with profit to themselves and their patients.

THE VAGARIES OF INFANT FEEDING.

FEW phases of medicine have been in such a state of flux during the last twenty years as infant feeding. In Boston the percentages have been calculated to a nicety and the babies have done well. Elsewhere (and now in Boston) babies have been fed on whole milk dilutions based on their protein and calorie needs for body weight, and they have done well. Many types of sugars and starches have been used, and the milk protein has been modified by many methods. Buttermilk has been mixed with Karo corn syrup. Milk has been dried and re-dissolved. It has been peptonized. Protein milk has been used for certain disorders, with and without the addition of sugar.

One of the more recent developments has been that of the butter flour mixture, introduced in 1918 by Czerny and Kleinschmidt. The original formula consists of butter 7 grams, flour 7 grams, cane sugar 5 grams, and water up to 100 c.c., the butter being first cooked, then the flour added, and the two cooked together until brown. The resulting butter soup is mixed with boiled whole milk in varying proportions dependent on the weight of the infant to be fed.

Brown, Courtney, and MacLachlan, in the *American Journal of Diseases of Children*, November, 1922, describe their modification of this mixture, consisting of butter $7\frac{1}{4}$ teaspoons, cane sugar $5\frac{1}{4}$ teaspoons, flour $14\frac{3}{4}$ teaspoons, and water $17\frac{1}{2}$ ounces. This changed butter soup with its higher starch content is also added to whole milk. Excellent results have been obtained by many observers with some type of butter soup feeding, especially in the newborn and in cases of chronic malnutrition and difficult feeding with no particular symptomatology. Its use is advised against in acute conditions and in those where an intolerance to one or more food constituents is present.

The use of boiled butter instead of cream in modified milk formulae is advocated by Dr. Harry Lowenburg, speaking before the Philadelphia Pediatric Society, *Archives of Pediatrics*, October, 1922. He finds that boiling sweet butter for two minutes reduces the fatty acid content by more than half, or to a much greater degree than occurs by boiling cream. Butter so boiled can be added to skimmed milk in considerably greater quantities than can cream, without causing digestive disturbances.

The conclusions that we are forced to reach are that infants thrive on fat, carbohydrate, protein, salts and water, and that the types and quantities of these principles can be varied considerably as to kind and quantity without untoward results, and often with probable benefit. The only warning we would issue is that experiments be kept within the bounds of safety and be not performed by those who are untrained in the art of infant feeding and incompetent to judge their results.

VOX CLAMANTIS.

The American Medical Press of New York, a recently founded publication, voices, in its issue for November, a protest against "The Closed Hospital Menace." It is directed against "the undemocratic institution which excludes all but a chosen few from within the sacred circle constituted by the staff."

The Medical Press, apparently, would have the doors of all hospitals flung open to all practitioners, who could send in their patients at will and treat them according to their own dictates. It has been our experience that physicians who merit confidence generally have no difficulty in being included in some "sacred circle." Possibly those who find themselves unable to gain admittance are not always deserving of the privilege.

In the same issue the Medical Press finds indications of "A startling alliance between the Rockefeller interests and the Hearst publications." This is based on a series of articles written by Paul H. De Kruif, B. S., Ph.D., of

the Rockefeller Institute, aimed at proprietary medicines and drugs. Dr. De Kruif is a pathologist and bacteriologist. It is our opinion that a doctor of philosophy is entitled to his title; the Medical Press apparently does not agree with us, since the title of Dr., wherever it occurs before Dr. De Kruif's name, appears in quotation marks.

According to the Medical Press, "The De Kruif propaganda marks another step in the plans of the Rockefeller interests and the American Medical Association to undermine public confidence in the family physician and bring about a popular demand for State medicine."

This is interesting, if true, but we find ourselves unable to become too greatly disturbed by the danger.

News Notes.

ROYAL SOCIETY OF MEDICINE.—In the "Proceedings of the Royal Society of Medicine," for November, 1922, published in London, the Sections of Dermatology, Epidemiology and State Medicine, and Medicine are reported. At the Section of Dermatology meeting, July 20, 1922, cases were shown by various dermatologists. The Section of Epidemiology and State Medicine met April 28, 1922, the paper abstracted being by Frederick Dittman, M.D. Glas., F. R. C. P. Edin., on Some Outbreaks of Enteric Fever due to Carriers of Infection. At the Section of Medicine, May 23, 1922, William Hunter, C. B., M. D., F. R. C. P., read a paper on The Nervous and Mental Disorders of Severe Anaemias in Relation to Their Infective Lesions and Blood Changes.

DEATH RATE IN BOSTON.—During the week ending Dec. 2, 1922, the number of deaths reported was 235, against 196 last year, with a rate of 16.04. There were 34 deaths under one year of age against 28 last year. The number of cases of principal reportable diseases were: Diphtheria, 60; Scarlet Fever, 29; Measles, 53; Whooping Cough, 50; Typhoid Fever, 3; Tuberculosis, 44. Included in the above were the following cases of non-residents: Diphtheria, 10; Scarlet Fever, 4; Measles, 2; Typhoid Fever, 1; Tuberculosis, 24. Total deaths from these diseases were: Diphtheria, 6; Measles, 3; Typhoid Fever 1; Tuberculosis, 7. Included in the above, were the following cases of non-residents: Diphtheria, 3.

BOSTON CITY HOSPITAL.—At a recent meeting of the Surgical Staff of the Boston City Hospital, it was voted to resume operating in the Surgical Amphitheatre on Saturday mornings at ten o'clock.

THE AMESBURY HOSPITAL.—That Amesbury will have a new hospital in the not very dis-

tant future, seems now an assured fact. A most favorable site has been secured, and the architect will soon submit the plans to the officers of the Amesbury Hospital Association, and also to the local doctors who will constitute the medical staff of the institution. The new hospital is to be erected, equipped and maintained on the community plan. As proposed, it will consist of thirty rooms, including a maternity ward, accident ward, and two large wards—one for men and one for women—operating rooms, and the remainder for private rooms. The officers of the Association are: *President*, C. I. Pettingell, Esq.; *Secretary*, E. J. Graves; *Treasurer*, H. B. Locke.

J. F. R. BIRON, M.D.

THE LAWRENCE MEDICAL CLUB.—The Monthly Meeting of the Club was held Nov. 27th, 1922, with Dr. T. W. Murphy, at the Red Tavern. Chairman for the evening was Dr. H. H. Nevers; subject: "The Work of Dr. Carrel at the Rockefeller Institute," Miss Charlotte Mikalson.

F. H. JENSON, a chiropodist whose advertisement might be construed as indicating that he is a surgeon, was recently brought before the court on complaint of an officer of the Department of Public Safety. He pleaded *nolo contendere* and the judge placed his case on file with the condition that he should use the term surgeon as a compound word, surgeon-chiropodist. Action against Mr. Jenson was inaugurated by the State Association of Chiropodists for the purpose of compelling practitioners in this field to avoid any form of advertising that might deceive the public.

THE MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS.

The November Meeting of the Massachusetts Society of Examining Physicians was held Nov. 27, 1922, following a dinner at the Copley-Plaza Hotel, 35 members being present. The President, Dr. William P. Coues, presided. The general subject of the meeting was "The Human Back," discussed from various angles.

Dr. James W. Sever was the first speaker and he said that the diagnosis of a lame back without demonstrable x-ray findings had to be based purely on subjective symptoms, therefore it was a difficult proposition to determine the amount of the disability. He laid great stress on the importance* of having an *immediate x-ray* on every case of injured back, if only as a record, for they often show bony changes which might later be attributed to the accident. He also emphasized the importance of having all cases of back injuries under *proper treatment* and he spoke of the fact that a survey of the cases of

back injury which come to the attention of the Massachusetts Industrial Accident Board show that with or without treatment, their time for recovery was six months, and that many of them existed for a very much longer time. Dr. Sever accompanied his talk with a number of x-rays shown on the screen, which demonstrated the arthritic changes which may occur in the spine without symptoms and which may cause symptoms after a slight injury. He also showed various cases of fracture of the spine from patients who have recovered after proper treatment.

The second speaker was Dr. Lloyd T. Brown, and his point of view was one largely of posture. He demonstrated by pictures and x-rays 3 distinct types of backs; the flat, broad back; the narrow lithe type and the type which fell in between. It was an interesting fact that the x-ray evidence showed that the very vertebrae were in accord with the type of back as seen in the individual, and from an examination of the x-ray of the back, you could tell to which type its owner belonged. He emphasized strongly the necessity of teaching individuals to stand correctly and the importance of beginning these exercises in childhood. He said that he felt the time would come when individuals in industry would not be allowed to do work for which they were structurally unfit and this sorting process would be carried out scientifically by doctors properly trained.

The discussion of these two papers was opened by Dr. A. W. George, who said there have been and are more loose diagnoses made referable to the vertebrae than any or all parts of the body put together. The medical man and roentgenologist should study the normal, study age and its consequent changes in the vertebrae, study occupation and, last but not least, the mechanics of injury and the conditions that can and can only refer to injury in the vertebrae. He also said that given a workman beyond 40 years of age who has done laborious work throughout the period of his working days, you will find the individual changes entirely different from that found in young workmen. It is rare to find such an individual who does not show some degree of postural changes, scoliosis and subsequent wedging and deformity of the vertebrae, also hypertrophic changes. These latter changes he considers just as much a part of the workman's age as his hair growing gray. As to sacro-iliac dislocation, he said here we have the most frequent back lesion diagnosed today, or in the past, and yet we have rarely any tangible evidence of it from an x-ray point of view.

Dr. Francis D. Donoghue then carried on the discussion and said that the x-ray could never be a substitute for a real medical diagnosis. He felt that there was no definite time for an individual with a lame back to get well.

that time of year, age of the individual and the type of work he had been doing must be considered. He said that the orthopedic specialist was too apt to speak in terms of "plaster and eternity instead of braces and work." Dr. Donoghue also said that he considered all men on the level, that they did not loaf unless they had a real injury and that malingering, therefore, was confined to those unable to earn and the diagnosis belongs to those who are "diagnostically destitute."

The last to participate in the discussion was Dr. Frank Schubmehl, of Lynn, who gave some actual experiences in trying to fit men to their positions according to their physical development, and spoke of the difficulties of so doing, particularly in the present industrial situation.

HILBERT F. DAY, M.D.

A MERITED HONOR.

A well deserved tribute has been paid to a former Boston physician. The Radiological Society of North America has conferred a gold medal upon Dr. Percy Brown for the pioneer work which he has done in his chosen field. A graduate of the Harvard Medical School in 1900, he turned to x-ray work immediately after completing his internship at The Boston Children's Hospital. The field was new. The difficulties were great. The dangers involved were unknown. Those who work in the well-equipped x-ray laboratories of the present day cannot realize what it meant to work in a small basement room on Massachusetts Avenue near the old Children's Hospital on Huntington Avenue, which was torn down many years ago. Yet patients had to be sent out in this way to the laboratory started by Codman and continued by Brown because no suitable current could be secured in any other way. Dr. Brown also was instrumental in the establishment of x-ray departments at the Carney and St. Elizabeth's Hospitals. To him and to the lamented Walter Dodd fell the work of instruction in Roentgenology in the Harvard Medical School. They, together with Dr. Williams at the Boston City Hospital, had to be pioneers in the interpretation of plates and in the use of the fluoroscope. Dr. Brown, in spite of the effects upon his health resulting from the work he had done, had no more hesitation than did Dr. Dodd in giving his best first to the British and then to the American forces in the Great War. Fortunately, Dr. Brown did not have to make the supreme sacrifice made so bravely by Dr. Dodd.

Although Dr. Brown is now associated with the Jackson Clinic in Madison, Wisconsin, Boston still claims him. His friends here and everywhere rejoice in the great honor conferred upon him and wish him many years more of useful service.

DR. MAC KERROW'S SENTENCE.

THE Worcester Telegram reports that Chief Justice Walter Perley Hall of the Superior Criminal Court, on Nov. 27, 1922, sentenced Dr. Horace G. MacKerrow to serve not less than four years and not more than five years in the State's Prison at Charlestown, the first day to be in solitary confinement. The crime for which Dr. MacKerrow stands convicted was an assault on a Chinese woman in his office. Up to the time of the complaint Dr. MacKerrow had conducted a successful practice in Worcester for the past seventeen years and was prominent in church and fraternal organizations. His counsel stated that he had signed petitions from at least one thousand prominent Worcester citizens asking for clemency. Although the doctor denied the charge, an alleged confession made to the detective was in evidence. This was explained by the doctor as being the result of confusion at the time.

Obituaries.

JOSEPH GURNEY PINKHAM, M.D.

Dr. Joseph G. Pinkham, for forty years a medical examiner in Essex County, vice-president of the Massachusetts Medical Society in 1909-10, and acting president in the absence abroad of the president, has died at his home in Lynn, at the age of eighty-three, the end coming after an illness of several months, on November 30, 1922.

Born in West Gardiner, Me., Oct. 20, 1839, the son of Elias and Fannie (Sampson) Pinkham, he attended school there and then entered Haverford College in Pennsylvania, where he received the degree of A.B. in 1863 and A.M. in 1866. The degree of M.D. was conferred on him by the Long Island College Hospital in 1866, and in 1868 he came to Lynn, opening an office on Silsbee Street, opposite the site of the present Friends' Church.

For thirty years he was chief surgeon at the Lynn Hospital, was a Fellow of the American College of Surgeons, a consulting surgeon at the State Hospital for Insane at Hathorne, a trustee of the State Hospital at Foxboro, president of the Massachusetts Medico-Legal Society, and president of the Commonwealth Savings Bank. For twelve years he was a member of the Lynn School Board, four years serving as chairman.

He is survived by three daughters and two sons. Dr. Pinkham's wife, who was Georgianna MacKenney, of Maine, died five years ago.

MARSHALL CALKINS, M.D.

Dr. Marshall Calkins, a retired Fellow of the Massachusetts Medical Society, died of old age at his home in Springfield, November 26, 1922, at the great age of ninety-four years. Born September 2, 1828, at Wilbraham, Mass., he attended Wesleyan University at Middletown, Conn., and Union College at Schenectady, N. Y., receiving from the latter the degree of A.B. in 1853 and A.M. in 1856. He studied medicine with Calvin Newton of Worcester and took an M.D. at the Worcester Medical College in 1848 but, not satisfied with this, the college becoming extinct in 1859, he entered Dartmouth Medical School and graduated in medicine twenty years later, in the class of 1868. He settled in practice in Springfield, having joined the State Medical Society in 1862. He was retired in 1893. From 1873 to 1879 Dr. Calkins was professor of physiological and microscopical anatomy in the medical department of the University of Vermont. He was attending physician to the Springfield City Hospital in its early days and later consulting physician to the Springfield Homes for Friendless Women and Children; a member of the board of examining surgeons for pensions. Until recently he was engaged in general practice. Among his memberships were the American Medical Association, Hampden Medical Club, corresponding member Boston Gynecological Society, member Vermont State Medical Society, and American Association for the Advancement of Science.

Dr. Calkins was married in 1855 to Miss Adelaide A. Hosmer, daughter of Gen. E. M. Hosmer of West Springfield. She was a member of the school committee for twelve years and died in 1909. He is survived by his son, Dr. Cheney H. Calkins of Springfield, a Fellow of the Massachusetts Medical Society.

RECENT DEATHS.

DR. HENRY M. SMITH died at his home in Lee at the advanced age of 73 after an illness of several months. He had served as medical examiner and town physician and had held several town offices.

DR. CHARLES WILLIAM GALLOUPE, a Fellow of the Massachusetts Medical Society from 1883 until 1921, when he resigned, died in Boston, November 29, 1922, at the age of sixty-four. He was born in Lynn, May 12, 1858, the son of Dr. Isaac Francis Galloupe, a prominent physician of that city. Charles graduated at Harvard in 1879 and from Harvard Medical School in 1882, serving as surgical house officer at the Massachusetts General Hospital. He had an office on Commonwealth avenue, Boston, for many years.

DR. WALTER EVERETT WHITNEY, a specialist in ophthalmology, otology, laryngology and rhinology, died at the Eastern Maine General Hospital at Bangor, Maine, November 28, 1922 at the age of fifty-seven. He was a graduate of Jefferson Medical College, Philadelphia, in 1893 and had practised in

Richmond and Oakland, Maine, before settling in Bangor in 1909.

DR. CHARLES ADELBERT LIBBY, a graduate of the New York Homeopathic Medical College and Flower Hospital in 1873, died in Arlington, his home and place of practice since graduation, November 28, 1922, aged seventy-one. He was a native of Limington, Maine and a member of Hiram lodge, A.F.&A.M., Menotomy Royal Arch Chapter and of Boston Commandery of Knights Templar. He is survived by his widow, who was Miss Mabel Small.

DR. FREDERICK ARTEMAS SIMONDS, a Fellow of the Massachusetts Medical Society, died at his home in Wakefield, of heart disease, at the age of thirty-four. He had been ill for several weeks, the end coming on December 2, 1922.

He was a graduate of the Wakefield High School in 1907, of Tufts College Medical School in 1914, serving as house officer at the Boston City Hospital and practising in Cambridge until becoming a member of the Harvard Unit for service abroad with the British army during the World War. He gave a good account of himself while in the army, was in the aviation corps at one time, and on returning was a member of the Medical Corps of the 101st Infantry. He settled in practice in Wakefield.

Dr. Simonds was a member of the American Legion and a Mason.

The Massachusetts Medical Society.
MEMBERSHIP CHANGES FOR THE MONTH OF
NOVEMBER, 1922.

OFFICIAL LIST (10th)

Compiled by the Secretary.

ALPHABETICAL LIST.

The names of the new Fellows, following the examinations of November 2, will be found in the *Directory* of January 1, 1923.

Adams, Letitia D. Jamaica Plain, office Boston, 82 Commonwealth Ave. (from Suffolk to Norfolk).

Adams, Walter H., from Northampton to Florence, office Northampton, 34 Bridge St.

Ahlstrom, Hjalmar, Quincy, now 96 Garfield St.

Andrews, Robert E., from Ludlow to Springfield, office Ludlow. Ludlow Mfg. Associates.

Anger, Louis L., from Worcester to Montreal, Can., 329 Stuart Ave.

Brown, William James, from Cambridge (Middlesex South) to Boston (Suffolk), 316 Huntington Ave.

Cabot, Richard C., from Boston (Suffolk) to Cambridge (Middlesex South), Emerson Hall, Harvard University.

†Calkins, Marshall, died at Springfield, Nov. 26, 1922, aged 94.

Carr, Earl B., from Montrose, Minn., to Silver Creek, N. Y., 37 Oak St.

Chambers, Ralph M., from Westborough to Medford, office Boston, Room 109, State House.

Cobb, Gardner N., Worcester, from 24 Elm St., to 21 High St.

Collins, William J., Northampton, from 150 Main St. to 136 Main St.

Copeland, Elmer H., Northampton, from 168 Elm St. to 200 Elm St.

Cutler, George David, office now Boston, 270 Commonwealth Ave.

Davenport, Bennett F., Watertown, 11 Summit Rd.

Doie, George William, died at Lawrence, Nov. 21, 1922, aged 71.

Faxon, Nathaniel W., from Boston (Suffolk) to Rochester, N. Y., 6 Portsmouth Terrace (non-resident list).

1889) Gallagher, William Howard, Boston, 91A Court 1922) Street. Restored by Council, Oct. 4, 1922.

Gilman, Florence, Northampton, now 20 Elm St., Smith College.

Gordon, Samuel F., Philadelphia, Pa., now 206 E. Roosevelt B'ly'd.

†Grainger, William H., from East Boston to Winthrop, 49 Bartlett Road.

Harrington, Elmer J., Holyoke, now 239 Maple St.

Hill, T. Chittenden, Boston, from 31 Bay State Rd. to 270 Commonwealth Ave.

Hubbard, Eliot, Jr., Roxbury, office now Boston, 520 Commonwealth Ave.

Hutton, Willis A., from Shelburne Falls (Franklin) to Swampscott (Essex South), 76 Farragut Rd.

Kaplovitch, Henry, Haverhill. Name changed to Kapp, Henry, 50 Merrimack St.

Koppel, William, from Boston to Chelsea, 199 Chestnut St.

Little, Abby Noyes, Diarbekir, Turkey in Asia, Near East relief.

Lowry, Franklin P., Newton, now 457 Center St.

Metcalf, Ben H., from Denver, Colo., to Phoenix, Arizona, 391 North 4th Ave.

Miller, Charles Herman, died at Dorchester, November 23, 1922, aged 59.

Morrison, Laurie B., from Boston (Suffolk) to Brookline (Norfolk), office Boston, 370 Marlborough St.

Murray, Halstead G., Framingham, now 45 Newton Place.

O'Connor, Alfred S., Worcester, from 22 Ledge St. to 314 Grafton St.

Perry, Herbert B., from Northampton to Pelham, office Northampton, 55 New South St.

Pinkham, Joseph Gurney, died at Lynn, November 30, 1922, aged 83.

Prall, John Washburn, died at Dedham, November 17, aged 68.

Ripley, Horace G., from Roxbury (Norfolk) to Brattleboro, Vt., Brattleboro Retreat (non-resident list).

Lowland, William D., from Lynn (Essex South) to Newton (Middlesex South), office Boston, 220 Clarendon St.

Saeger, Ernest T., office now Boston, 270 Commonwealth Ave.

Safford, Wilber Pray, died at Brockton, November 16, 1922, aged 67.

Sawyer, Edward J., Newton, office Boston, 520 Commonwealth Ave.

Smith, George Gilbert, Boston, from No. 352 to No. 7 Marlborough St.

1917) Smith, Lillian Richardson, Lawrence, 92 Bailey 1922) Street. Readmitted by Censors, Nov. 2, 1922.

Sullivan, Russell C., from New York City to Boston, 240 Newbury St.

Symonds, Alice G., now Churchill, Alice Symonds, Darlings Lake, Yarmouth Co., Nova Scotia.

1892) Tower, Frederick Russell, Boston, 51 Hunting- 1922) ton Ave. Restored by Council, Oct. 4, 1922.

Whiteside, George S., from Portland, Oregon, to New Haven, Conn.

Williams, Harold, Boston, from 528 to 535 Beacon St.

Zabriskie, Frank Hunter, died at Greenfield, October 25, 1922, aged 63.

ADDRESSES UNKNOWN.

Bolton, Charles James.
Brown, Fairy Potter Palmer.
Floury, Oswald Theodore.
Kassees, Saad H. A.
McClintock, Elsie.
MacKnight, William Frank.
Potter, John Claude.

Rabe, Edith Ruth Meek.
Sziklas, Charles.
Wetherbee, Roswell.
Williamson, Cordelia Isabella.

Changes of address should be sent to the Secretary, whose address will be 182 Walnut Street, Brookline 46, Mass., after December 20.

Correspondence.

THE MORTALITY OF DIABETES.

November 27, 1922.

Mr. Editor:

Referring to Hoffman's statistics of the mortality of diabetes, in your issue of July 27, a word of caution as to inferences of incidence ought to be spoken. For instance, the highest mortality per 100,000 is 38.4 for Malta; while the lowest is 1 for Venezuela. Now this does not mean that diabetes is 38.4 times as frequent in Malta as in Venezuela. It would very likely be nearer the truth to say that a case of diabetes in Malta has 38.4 chances of discovery and record to one in Venezuela. Considering that Malta has only about 200,000 inhabitants, and an area of not quite 100 square miles, that it is administered somewhat on the lines of a theoretic benevolent despotism, and that it has been combed over by commissions—mainly for Malta fever—for a generation, the chances of a case of diabetes dying without diagnosis and record are exceedingly minute. In Venezuela, on the contrary, a great many deaths occur without any medical observation. To some degree, islands are more amenable to the gathering of statistics than other areas and the table very clearly shows the influence of concentration of population, civilization and medical organization, particularly the last factor. For instance, in the large European medical centers, we find high rates, with Berlin leading. Comparing cities with cities and for the countries including them, we find inconsistencies in incidence that can scarcely be explained except by differences in statistical accuracy. (For example: London 10.3, Edinburgh 10.4, Isle of Man 18.1, England and Wales 11.8, Amsterdam 15.9, Holland 12.5, Barcelona 14.9, Madrid 8.8, Spain 5.8.) It is possible that more comprehensive statistics would show more definitely differences between city and country, between analogous countries, between different races, between widely different climates, according to dietetic habits, etc. The agreements and divergences in Hoffman's table do not, so far as I can see, demonstrate anything but differences in medical observation and collation of statistics, although there are many tantalizing suggestions that provoke questions as to other factors.

A. L. BENEDICT.

THE SUFFOLK DISTRICT SOCIETIES MEETING ON REHABILITATION.

(Letter by Mr. Joseph A. Parks.)

Boston, Mass., Nov. 27, 1922.

Hilbert F. Day, M.D., 45 Bay State Road,
Boston, Mass.

Dear Doctor:

I have received yours of the 23d and thank you for your kindness in expressing your appreciation to me for the little effort I made at the doctors' meeting the other evening. I assure you it was a pleasure for me to be there and only wish that I had more time to discuss the very important subject of rehabilitation. I was nervous about using up more time than

was allotted to me and did not want to abuse the extraordinary privilege extended to me. At the close of the meeting I should like to have expressed my appreciation to everyone present, particularly to the speakers, for the time and thought which various doctors must have given the subject. It was a grand thing to hear those doctors discuss the best way in which the injured workmen could be assisted and their cases properly handled and made useful members of society. The thing which impressed me most was that all through the entire discussion there seemed to be no thought of "what is there in it for me." The entire keynote of the meeting seemed to be, "how can we help the injured workmen" with no thought as to where the doctor was coming in, financially.

Since that evening, I have felt that I should like to express my thanks in a more public way and felt that they certainly deserve thanks from the injured workmen of Massachusetts and those who will be injured in the future, for the way the medical society in Massachusetts is trying to assist them. I assure you if at any time you should care to have my assistance as a layman, I will gladly give it.

Thanking you for the privilege of being with you on the evening of November 22, I remain,

Sincerely yours,
JOSEPH A. PARKS.

BOSTON CITY HOSPITAL.—Staff Clinical Meeting, Cheever Surgical Amphitheatre, Thursday, December 14, 1922, at 8 P.M. Myocarditis, Francis W. Peabody; Mediastinal Tumors, Henry Jackson Jr.; Spastic and Atonic Constipation, Percy B. Davidson. Open discussion. Physicians and students invited. Refreshments served 9.30 P.M. John J. Dowling, *Superintendent*.

BOSTON MEDICAL HISTORY CLUB.—Meeting at Boston Medical Library, Monday, December 18, at 8.15 P.M. The proposed amendment to the constitution whereby the annual meeting will be changed from December to April will be voted upon.

Dr. Robert M. Green will read on "The Early History of Medical Journalism in New England." In commemoration of the centenary of the birth of Pasteur (Dec. 27, 1822) Drs. Harvey Cushing, L. J. Henderson and M. J. Rosenau will speak. Dr. M. Storer will show the Pasteur medals in the Storer Collection and there will be an exhibition of Pasteur's works. By vote at the last meeting future meetings will be held on the third Monday of the month, viz. January 15, February 19, March 19, April 16. Please make note of these dates.—John W. Cunnin, *Secretary*.

SOCIETY MEETINGS. DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District.—Hyannis, —February 2, 1923, (Annual Meeting).—May 4, 1923.

Bristol South District.—Fall River, —May 3, 1923.

Essex North District.—Haverhill, (Semi-Annual Meeting).—January 3, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting).—May 2, 1923.

Meetings of the Suffolk District and the Boston Medical Library, at the Library.

December 27, 1922.—Surgical Meeting. "Surgical Lesions Occurring in Diabetes: Their Peculiarities and Management," Dr. Elliott P. Joslin, Boston. An account of the experience in this field of the major hospitals of Boston, by members of the staffs.

January 31, 1923.—Medical Meeting. "Epidemic Encephalitis," Dr. E. W. Taylor, Boston.

February 28, 1923.—Medical Meeting. "Colitis," Dr. Henry F. Hewes, Boston.

March 28, 1923.—Surgical Meeting. "A Review of What Surgery Can Accomplish in Diseases of the Thoracic Organs, with a Forecast of the Future," Dr. Howard Lilienthal of New York.

April 25, 1923.—Annual Meeting. Election of Officers. "The Record of the Past Twelve Years in Syphilology, with a Forecast of the Future," a series of 10-minute papers. Dr. C. Morton Smith, Boston, will preside.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexia Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District.—Meeting, Wednesday, January 31, 1923.

Middlesex East District.—Jan. 24, 1923. The Nursing Problem. Speaker to be announced later.

March 21, 1923. Mental Factors in Childhood. Paper by Dr. William Healy.

April 18, 1923. Interpretation of Laboratory Findings. Papers by Dr. E. G. Crabtree and one to be announced later.

May 9, 1923. Annual Meeting.

All meetings except the annual meeting will be held at the Harvard Club in Boston. A. E. Small, Secretary.

Worcester District Meetings are scheduled as follows:

January 10, 1923.—The meeting will be held at the Worcester State Hospital, Belmont Street, at 4.15 P.M. Programme: "A Discussion of Status Thyroideus-Lymphaticus and the Inherent Compensatory Possibilities," Dr. Walter Timme, New York City. Discussion will be opened by Dr. W. A. Bryan.

February 14, 1923.—The meeting will be held at the Worcester City Hospital at 4.15 P.M. The programme will consist of a series of papers by members of the staff.

March 14, 1923.—The meeting will be held at St. Vincent's Hospital at 8.15 P.M. The programme will consist of a series of papers by members of the staff.

April 11, 1923.—The meeting will be held at Memorial Hospital at 8.15 P.M., and the programme will consist of a series of papers by members of the staff.

May 9, 1923.—Annual meeting and banquet.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

December 26-30, 1922.—American Association for Advancement of Science meets in Boston.

December, 1922.—Boston Medical History Club will meet December 18, 1922.

January, 1923.—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston; W. H. Allen, Mansfield, Mass., Secretary.

January, 1923.—Boston Association of Cardiac Clinics. Meeting January 19, 1923, at 8.15 P.M. Boston Lying-In Hospital (New Hospital). Subject: Pregnancy and Heart Disease.

January, 1923.—Boston Medical History Club will meet January 15, 1923.

February, 1923.—New England Dermatological Society Meeting, February 14, 1923, at 3.30 P.M., in the Skin Out-Patient Department, Massachusetts General Hospital; C. Guy Lane, Secretary.

February, 1923.—Boston Medical History Club will meet the third Monday of this month.

March, 1923.—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary.

March, 1923.—Boston Association of Cardiac Clinics. Meeting March 15, 1923, at 8.15 P.M. Boston City Hospital. Subject: Prevention and Relief of Heart Failure.

March, 1923.—Boston Medical History Club will meet the third Monday of this month.

April, 1923.—New England Dermatological Society Meeting, April 11, 1923, at 3.30 P.M., in the Surgical Amphitheatre, Boston City Hospital; C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston; W. H. Allen, Mansfield, Mass., Secretary.

April, 1923.—Boston Medical History Club will meet the third Monday of this month.

May, 1923.—Massachusetts Society of Examining Physicians (date and place undecided). American Pediatric Society Meeting May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind.; H. C. Carpenter, Secretary.

May, 1923.—Boston Association of Cardiac Clinics. Meeting May 17, 1923, at 8.15 P.M. Children's Hospital. Subject: Rheumatism and Chorea and Heart Disease.

June, 1923.—American Medical Association, San Francisco, June 25-29, 1923; Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923.—Massachusetts Association of Boards of Health, July 26, Nantasket; W. H. Allen, Mansfield, Mass., Secretary.

*Deceased September 2, 1922.

The Boston Medical and Surgical Journal

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STUDIES IN PANCREATIC FUNCTION. THE ENZYME CONCENTRATION OF DUODENAL CONTENTS IN PATHOLOGICAL CONDITIONS INVOLVING THE PANCREAS, LIVER AND STOMACH.

BY CHARLES W. MCCLURE, M.D., BOSTON,
and
CHESTER M. JONES, M.D., BOSTON.

[From the Evans Memorial, the Massachusetts General Hospital, the Peter Bent Brigham Hospital and the Massachusetts Homeopathic Hospital.]

NUMEROUS clinical studies¹ have been made of enzymatic activity in the stools, urine and duodenal contents, in an effort to obtain a satisfactory measure of the activity of the external secretory function of the pancreas. The results of such investigations have led observers to maintain that obstruction of the pancreatic ducts is accompanied by marked diminution in proteolytic, amylolytic and lipolytic activity in duodenal contents, and in the amylolytic activity in stools, while the amylolytic activity in urine was observed to be increased. Critical examination of the methods used in all such studies, however, has shown them to be far from accurate, and subject to large degrees of individual error. By such methods it was demonstrated that the amylolytic activity in both urine and

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stools varied greatly in persons without pathological involvement of the pancreas, and diagnostic deductions based upon such estimations were of little or no clinical significance.²

The relative inaccuracy of all methods for estimating enzymatic activity, that have been employed in studying cases of supposed pancreatic insufficiency, is recognized. The fallacy of drawing conclusions from data obtained by them rendered desirable the development of newer methods, which would conform with the present-day concepts of the physical chemistry of enzyme action. The recent work of McClure, Wetmore and Reynolds³ has made possible the application of more refined technic to the study of external pancreatic function, and has eliminated many of the obvious sources of error in previous methods. The methods devised by these investigators conform to the newer concepts of enzyme action, and they take into account certain previously disregarded factors, such as the influence of buffer conditions and of hydrogen ion concentration on enzyme action, lack of uniformity of enzymatic activity, lack of stability of enzyme action, etc. These workers studied, by means of these methods, a series of fifteen normal individuals,⁴ determined the approximate accuracy of the methods, and found the normal variation and lower normal limits of enzyme action in the duodenal contents. These findings were later confirmed by further observations on normal persons and patients without demonstrable pancreatic disease.*

*Unpublished observations.

It is the purpose of this paper to present the findings obtained by the use of the above methods as applied to a series of selected cases, consisting largely of acute or chronic involvement of the pancreas or biliary tract. We shall attempt to consider, first, the pathologic physiology existing in cases of pancreatic disease, and second, the practical clinical value of the above tests of enzymatic activity, as a means of diagnosis and prognosis. Studies of the enzymatic activity in the duodenal contents have been made in patients with pernicious anemia, achylia gastrica, chronic colitis, carcinoma of the liver and bile ducts, carcinoma of the pancreas, acute and chronic pancreatitis, and in patients with jaundice from other causes.

Technic.—The method of procedure for obtaining duodenal contents has been described in a previous article.⁴ In brief, it consists in allowing the duodenal tube to pass into the second portion of the duodenum and verifying its position by fluoroscopy. The patient then drinks a mixture consisting of 40 c.c. of 20 per cent. cream (ordinary heavy cream) in which is suspended 15 grams of barium sulphate. The barium is added because it has been found that cream often appears in the duodenal contents more quickly when mixed with barium than when given alone. After ingesting the cream and barium mixture the patient lies on the right side, and the flow of duodenal contents is initiated by gentle suction with a syringe. As soon as the flow has started, the duodenal contents are allowed to siphon off, and are collected for one hour after barium appears in the duodenal contents.

The estimation of enzymatic activity is made,

within an interval of not more than eighteen hours after collecting the duodenal contents, by the methods devised by McClure, Wetmore and Reynolds.³ How much longer than eighteen hours the enzymes remain stable has not been determined. Proteolytic activity is estimated by allowing a dilution of the duodenal contents to act on a solution of soluble casein. The casein not affected by proteolytic action is precipitated by means of metaphosphoric acid solution. The index of proteolytic activity is taken as the number of milligrams of nitrogen not precipitated by the metaphosphoric acid. This nitrogen value is determined by an adaptation of the method of Folin and Wu for the determination of non-protein nitrogen in the blood. Amylolytic activity is estimated as the number of milligrams of glucose developed by action of duodenal contents on a solution of soluble starch. The index of amylolytic activity is taken as the total number of milligrams of glucose developed, as determined by the method of Folin and Wu for the determination of sugar in the blood. Lipolytic activity is estimated by allowing duodenal contents to act on a true emulsion of cottonseed oil, and determining the amount of acidity developed by titrating with tenth normal alcoholic solution of NaOH. The total number of c.c. of N/10 NaOH necessary to neutralize the acidity developed is used as the index of lipolytic activity. The samples of duodenal contents and the reagents used must be controlled for the presence of nitrogen not precipitated by metaphosphoric acid, for copper reducing bodies and for acidity. In a certain number of cases it was found that the duodenal contents obtained both from patients and from

Table 1
Enzymatic activities, amounts and physical character of
duodenal contents in achylia gastrica, pernicious anemia and
chronic colitis.

Case No.	Enzymatic Activity			Amt. in c.c.	Color	Viscosity	Diagnosis
	Proteolytic in mgm. N/10 NaOH	Lipolytic in c.c. N/10 NaOH	Amylolytic in mgm. glucose				
Control	2.0	1.0	1.0	50 to 400	greenish yellow	moderate	Minimum normal limits
1.	2.8	1.4	2.0	105	lemon yellow	moderate	Achylia gastrica
2.	3.7	2.6	4.7	70	greenish yellow	moderate	Achylia gastrica
3	3.3	1.6	3.8	150	greenish yellow	moderate	Pernicious Anemia
4.	5.0	2.5	3.1	150	greenish yellow	moderate	Pernicious Anemia
5.	3.0	1.6	2.0	150	greenish yellow	moderate	Chronic Colitis

normal subjects were so viscid that pipetting was difficult. The results obtained, however, in examining such specimens were entirely comparable to those obtained in cases in which the viscosity was not excessive. The extremely viscid duodenal contents were diluted as called for by the method for estimating amylolytic activity, and filtered through dry filter paper. With this precaution the final blue solution was not turbid.

Examination of Cases.—The enzymatic activities of duodenal contents obtained from four patients with achylia gastrica were estimated. Two of these patients presented the clinical entity achylia gastrica, with chronic diarrhoea, and two, pernicious anemia in severe relapse. A fifth patient was studied who was

suffering with chronic colitis. The findings in these cases, together with the minimum normal limits of enzymatic activity in duodenal contents as determined in normal individuals, and in patients without pancreatic disease, are outlined in the following table (Table 1). Study of these results show that the activities of the various types of enzymes in the duodenal contents were well above the minimum normal limits. The significance of these findings will be discussed later.

The enzymatic activities in the duodenal contents obtained from patients with some form of pancreatic disease were next studied. The findings are outlined in Table 2. All but two of the patients included in this group underwent an exploratory laparotomy during their

Table 2
Enzymatic activities, amount and physical character of
duodenal contents obtained from patients with diseases of the
pancreas.

Case No.	Enzymatic Activity			Amt. in c.c.	Color	Viscosity	Diagnosis
	Pro- tec- ty- tic in mgm. NPN	Lip- oly- tic in c.c. N/10 NaOH	Amy- lo- ly- tic in mgm. glu- cose				
6.x	3.6	1.0	1.2	150	greenish yellow	moderate	Pancreatic Cyst
7.x	2.5	1.6	2.0	90	greenish yellow	moderate	Cancer of tail and body of pancreas; diabetes mellitus
8.	0.9	0.0	0.0	55	white	very great	Cancer head of pancreas
9.x	0.0	0.2	2.0	100	white	very great	Cancer head of pancreas
10.x	3.0	1.6	1.4	150	greenish yellow	moderate	Chronic cholecystitis, cholelithiasis, acute pancreatitis
11.x	0.8 1.1	0.3 0.3	0.3 0.5	50 60	yellow yellow	great great	Chronic cholecystitis, cholelithiasis, chronic pancreatitis
12.a	1.6	0.4	0.5	250	greenish yellow	moderate	Hemochromatosis Chronic pancreatitis
13.x	0.0	0.0	0.0	105	yellow green	moderate	Chronic pancreatitis, diabetes
14.x	1.9 5.0	0.7 0.2	1.9 0.4	150 100	greenish yellow	moderate moderate	Acute pancreatitis, acute cholecystitis
15.x	1.7	0.0	0.7	130	green	very great	Acute pancreatitis
	0.9 2.2 0.5	0.0 0.8 0.2	0.0 0.5 0.1	150 100 100	yellow green-yellow yellow	moderate " "	
16.	2.6	1.0	1.2	100	green-yellow	"	Diabetes Mellitus

x-exploratory laparotomy. a-autopsy

stay in the hospital, or were examined at autopsy. Of the two cases not so examined one was clinically cancer of the head of the pancreas, and the other was a case of severe diabetes mellitus.

In Table 2 the enzymatic activities of the duodenal contents from Cases 6, 7, 10 and 16 were above the minimum normal limits. The duodenal contents in Cases 6, 7 and 10 were obtained about two weeks after laparotomy. Case 6 was one of cyst of the pancreas. The situation of the cyst was such that there was very little involvement of the pancreatic parenchyma, and no obstruction of the duct of Wirsung. At laparotomy in Case 10 two necrotic areas were found on the surface of the pancreas, but the greater part of the pancreatic parenchyma was not demonstrably diseased. Exploration in Case 7 showed the tail and body of the pancreas to be largely replaced by carcinomatous tissue. The head of the pancreas, however, was not involved, and there was no obstruction to the pancreatic duct. Case 16 represented extremely severe diabetes mellitus. The patient had lost fifty-six per cent. of his usual body weight.

The enzymatic activities of the duodenal contents of Cases 8, 9, 11, 12, 13, 14 and 15 were for the most part abnormally low. The clinical records of these cases will be found in the section of this article entitled Case Reports. Case 8 was clinically cancer of the head of the pancreas and obstruction to the pancreatic duct could explain the diminished enzymatic activity, but no operative or autopsy confirmation of the diagnosis was obtainable. Case 9 was one of carcinoma of the head of the pancreas, diagnosed at operation. The duodenal contents from this case showed negligible degrees of proteolytic and lipolytic activity, but amylolytic activity was well above the minimum normal limit. Case 11 was admitted to the hospital with a provisional diagnosis of possible pancreatic tumor. Studies of the duodenal contents showed a diminution of the three types of enzyme action. At operation chronic gall-bladder disease was found, and, also, one small stone in the cystic duct. In addition the pancreas was exceedingly hard throughout, and gave grossly the typical finding of chronic interstitial pancreatitis. Case 12 was one of hemochromatosis, with chronic pancreatitis. At autopsy it was observed that the pancreatic parenchyma was not greatly fibrosed, so that the diminished enzymatic activities found were not the result of great anatomical destruction of pancreatic tissue.

The first specimens of duodenal contents were obtained from Cases 14 and 15, about two weeks after laparotomy. Both these patients presented cases of acute hemorrhagic pancreatitis with extensive involvement of the pancreatic parenchyma. In the first specimen of duodenal contents obtained from Case 14, the proteolytic and lipolytic activities were just below the minimum normal limit, while amylolytic activity was above this limit. Nineteen days later a second

specimen of duodenal contents showed proteolytic activity well above the minimum normal limit, while lipolytic and amylolytic activities were much decreased below normal. The enzymatic activities of the first specimen and of the second specimen (obtained five weeks later) from Case 15, were both below the minimum normal limits. A third specimen was procured two weeks after the second. The proteolytic activity in this third specimen was above the minimum normal, lipolytic activity was slightly reduced, and amylolytic activity was much below the normal. The fourth specimen was taken five months after operation. The patient was in fair physical condition, but the examination of the duodenal contents showed a further decrease in all the enzymatic activities. In both these cases it was found that in the same specimen of duodenal contents one type of enzymatic activity was above the minimum normal limit, while the other two types were below this limit, and that the discrepancy was well marked.

Case 13 was one of unusual interest, inasmuch as it represented the progress of a case of pancreatitis from the acute stage to the final condition resulting in complete chronic involvement of the gland. The analysis of the duodenal contents was made about seven years following the original attack, during which laparotomy was performed and drainage instituted. Six months following operation about two-thirds of the pancreas is said to have sloughed away, and there has been a fistula persisting to date. At the time of the collection of the duodenal contents the patient had an acute, severe diabetes. No enzymatic activities of the duodenal contents could be demonstrated.

The effect of pancreatic disease on the enzymatic activities of duodenal contents may be summarized from the results outlined in Table 2, as follows:

1. Extensive involvement of the pancreatic parenchyma due to acute pancreatitis, or less extensive pathology accompanying chronic pancreatitis, was associated with a decrease below the minimum normal limits of at least two of the three types of enzymatic activity in the duodenal contents. It is possible that the diminution in enzymatic activity in these cases is due, in part, to obstruction to the flow of pancreatic secretion by the pathological process, as well as to actual destruction of pancreatic parenchyma.

2. Cancer of the head of the pancreas produced a marked decrease in enzymatic activities; although extensive carcinomatous involvement of the pancreas, not involving the head or duct of Wirsung, did not demonstrably affect the enzymatic activities of duodenal contents.

3. Slight involvement of the pancreatic parenchyma, when due to acute pancreatitis, pancreatic cyst or severe diabetes mellitus did not affect the enzymatic activities of the duodenal contents.

The enzymatic activities of duodenal contents obtained from fourteen patients with va-

rious types of disease of the biliary system, in- studied. The results are outlined in the follow-
cluding toxic and infectious jaundice, were next ing table. (Table 3).

Table 3
Enzymatic activities, amounts and physical character of duo-
denal contents obtained from patients with disease of the biliary
tract, including toxic and infectious (catarrhal) jaundice.

Case No.	Enzymatic Activity			Amt in c.c.	Color	Viscosity	Diagnosis
	Pro- teo- ly- tic in mgm. NPN	Lip- oly- tic in c.c. N/10 NaOH	Amy- lo- ly- tic in mgm. glu- cose				
17.x	2.9	2.8	3.1	70	white	very great	Stone in common duct, no bile ex- creted
18.x	2.7	1.6	0.7	100	light green	great	Stone in common duct
19.x	3.2	1.6	1.3	100	dark brown	moderate	Stone in common duct
20.	9.0	4.0	2.0	150	greenish yellow	moderate	Cholelithiasis
21.	0.9	1.8	1.4	200	greenish	moderate	Chronic hepati- tis, chronic cholecystitis, diabetes
	1.6	1.0	1.3	75	yellow	moderate	
22.x	2.0	0.2	0.6	50	greenish	moderate	Stone in ampulla of Vater, chronic cholecystitis, chronic hepatitis
	3.9	1.0	0.9	70	yellow	very great	
23.	1.0	0.0	0.0	50	white	very great	Stone in common duct
	5.2	1.0	2.0	75	greenish yellow	moderate	
24.x	1.0	0.1	0.0	150	white	very great	Stone in ampulla of Vater, chronic cholecystitis, chronic hepatitis
	5.9	1.9	3.3	100	greenish yellow	moderate	
25.x	1.4	0.1	0.7	70	white	moderate	Cholelithiasis, cholecystitis, Cholangitis
26.x	2.1	0.0	0.1	240	greenish yellow	moderate	Acute cholecystitis chronic choleves- titis, hepatitis
27.	2.2	1.0	0.8	200	greenish yellow	very great	Toxic jaundice due to eraphe- amine
28.	3.1	1.0	2.5	55	white	very great	Cancer of bile ducts
29.	0.5	1.1	3.0	20	white	very great	Infectious jaun- dice
	3.0	0.9	0.7	50	golden	moderate	
30.	2.2	1.6	0.5	400	golden	moderate	Infectious jaun- dice

x = Exploratory laparotomy.

In Table 3 the enzymatic activities of duo-
denal contents from Cases 17, 18, 19, 20, 27 and
28 were not below the minimum normal limits,
with the exception of a slight reduction in the
amylolytic activity of Cases 18 and 27. At the
time duodenal contents were collected all of the
patients were jaundiced, except Case 26. Cases
17, 18 and 19 underwent laparotomy; Cases 20
and 28 were not operated. The preoperative
diagnosis of Cases 17 and 18 was cancer of the
pancreas. At laparotomy, however, no evidences
of cancer were found anywhere in the upper

abdominal region. The duodenal specimen for
enzyme studies was obtained from Case 20 after
several instillations of 33 per cent. magnesium
sulphate solution, given at weekly intervals. It
will be noted that in this specimen proteolytic
and lipolytic activities were markedly great.

Abnormally low findings were present in duo-
denal contents obtained from Cases 21, 22, 23,
24, 25, 26, 29 and 30. The diagnosis given in
the table represents the conditions found on
laparotomy in all cases, except Cases 29 and 30.

All duodenal contents were obtained prior to operation except from Case 25.

No bile was present in the first specimens of duodenal contents obtained from Cases 23 and 24, but second specimens obtained a few days later contained much bile. In the interim between collection of the first and second specimens, Cases 23 and 24 had received duodenal lavage with magnesium sulphate solution. The first specimens of duodenal contents obtained from these cases after lavage with magnesium sulphate also contained no bile, although much bile was present in specimens taken on later dates. From such findings it is fair to conclude that obstruction to the flow of bile and pancreatic juice existed at the time of collection of the first specimens of duodenal contents. In this connection it is to be recalled that at operation Case 24 showed a stone in the ampulla of Vater.

Stones were found in the ampulla of Vater in Case 22, and a partial obstruction caused by them might explain the low enzymatic activities present in the first specimen of duodenal contents. The second specimen of duodenal contents from this case was obtained a few days later, and in the interim duodenal lavage with magnesium sulphate solution had been employed. In the second specimen the enzymatic activities were all above the lower limits of normal.

Case 25, which was explored several weeks prior to a study of the duodenal contents, showed at operation a mass of inflammatory tissue in the region of the gall-bladder, containing several gallstones. It was impossible to explore the common bile duct or the region of the pancreas. The low figures for enzymatic activity can probably best be explained by an inflammatory process involving the common bile duct, and to some extent the pancreatic duct. In Case 26 there was no jaundice, and no obstruction to the flow of bile existed at the time of operation. The low lipolytic and amylolytic activities in this case, therefore, cannot be explained as resulting from obstruction to the pancreatic duct; it will be noted that proteolytic activity was not below the minimum normal limit.

The specimens of duodenal contents obtained from Case 20 showed abnormally low proteolytic values, while the figures for lipolytic and amylolytic activity were above the minimum normal limits. These findings are not comparable to those found in the cases in which obstruction to the pancreatic duct was proved to exist, but are similar to the findings in those cases in which pancreatic disease existed (cf. Cases 12 and 14 in Table 2). Furthermore, Case 21 was not jaundiced at the time the second specimen of duodenal contents was collected. The significance of the findings will be discussed later.

The first specimen of duodenal contents was taken from Case 29 at a time when the contents obtained from the use of magnesium sulphate showed only a faint yellowish tinge. In this

specimen only the proteolytic activity was below normal. A few days later the duodenal contents, following the use of magnesium sulphate, were deep golden yellow. At this time proteolytic activity was normal, while lipolytic and amylolytic values were slightly below the minimum normal limits. In Case 30 there had been almost complete absence of bile from the duodenal contents after magnesium sulphate lavage up to a few days prior to obtaining the specimen for enzyme studies. This latter specimen contained much bile, and proteolytic and lipolytic figures were normal. Amylolytic activity was much below normal. The significance of all the above findings will be discussed at the close of the paper.

The findings outlined in Table 3 may be summarized as follows:

1. Partial or apparently complete absence of bile did not in itself diminish the enzymatic activities of the duodenal contents below the minimum normal limits, when no obstruction to the pancreatic duct existed.
2. Obstruction in the ampulla of Vater was accompanied by diminished enzymatic activities of duodenal contents.
3. Diminished activity of one or more of the enzymes was found in the duodenal contents of two patients without obstruction to the pancreatic duct demonstrable at operation.
4. Toxic jaundice due to arsphenamin was not accompanied by abnormally low enzymatic activities of duodenal contents.
5. Diminished activity of one or more of the enzymes was found in the duodenal contents of two patients with infectious (catarrhal) jaundice.

Discussion.—From the standpoint of the present concepts of the physiology of digestion, as expressed in the various standard works on physiology, there are a vast number of hypothetical entities in the human intestines which can affect enzyme action. Absence of tryptic activity, for example, could theoretically be due to a lack of enterokinase, so that "trypsinogen" would not be changed into the active form, trypsin. The existence of enterokinase, however, has not been definitely proved,⁵ and the same may be said of other hypothetical substances said to affect enzyme action. The great majority of these substances may have no actual existence, but may be merely the expression of certain physical chemical conditions under which enzymes act less or more efficiently. For this reason the so-called "inhibitors," "accelerators" and "activators" of enzymes will not be discussed in the interpretation of the results obtained in the work here reported. Another element of importance in interpreting the results presented in this study is the question as to inherent errors in the methods employed. The large amount of work done on normal persons and patients without pancreatic disease has satisfactorily controlled the methods and procedures, and we consider that no inherent er-

rors exist which vitiate conclusions drawn from a comparison of the results obtained in the work here presented with the findings obtained in normal individuals.

The results given in Table 1 show that normal enzymatic activities were present in duodenal contents of the patients with no detectable hydrochloric acid in the gastric contents (usual test with Töepfer's reagent). If achlorhydria-gastrica existed in these patients, obviously the secretion of pancreatic juice was not dependent on the presence of hydrochloric acid injected into the duodenum from the stomach. The findings also show that pancreatic achylia did not exist, although it is frequently stated that pancreatic insufficiency is present in both achylia gastrica and pernicious anemia.

The duodenal contents of two of the patients in this series (Cases 17 and 28) apparently contained no bile. Nevertheless, the enzymatic activities were not below the minimum normal limits. In one of these patients (Case 17) laparotomy findings demonstrated no obstruction to the pancreatic duct and no disease of the head of the pancreas. In the other patient (Case 25) it seems fair to assume that neither of these conditions existed. Furthermore, the addition of human bile to duodenal contents does not increase the enzymatic activities.* From these findings it is assumed that the character of the methods used is such as to eliminate bile as a conditioning factor in enzyme activity. This conclusion is not to be construed as meaning that the action of pancreatic enzymes is not affected by the presence or absence of bile in the human intestines, but only *in vitro*, under the experimental conditions called for by the methods used in the work here reported.

The findings in Case 10, in Table 2, show that acute necrosis involving but little of the pancreas did not demonstrably affect the enzymatic activities of the duodenal contents. From this it seems reasonable to infer that the secretory activity of the pancreas was not greatly disturbed. Cases 14 and 15, on the other hand, showed greatly altered enzyme activity, and in these cases extensive destruction of pancreatic parenchyma had occurred. These findings indicate that the degree of abnormality in enzymatic activities present in duodenal contents obtained from cases of acute pancreatitis depends largely on the amount of destruction of pancreatic tissue.

Cases 14 and 15 represented acute pancreatitis. In the duodenal contents from these cases there was dissociation of enzymatic activities; i.e., one or more types of enzymatic activity were of normal degree, while the remainder were below the minimum normal limits. Such findings did not occur in any of the duodenal contents obtained from a relatively large number of normal persons and patients without demonstrable pancreatic disease. For this reason the results obtained in Cases 14 and 15, in which there was

extensive pancreatic disease at the time of laparotomy, are interpreted as resulting from pancreatic dysfunction.

In Cases 8 and 9 (Table 2) (cancer of head of the pancreas) the pancreatic ducts were considered to be occluded by the carcinomatous process. With one exception, the enzyme activities were considerably diminished. The exception noted occurred in the value for amylolytic action in Case 9. The activity of this enzyme may be explained either as a result of an amylase arising in the pancreas and gaining access to the duodenum through ulcerative processes, or as coming from the saliva or duodenal mucosa. In any event, the findings in these two cases indicate that in the presence of cancer of the head of the pancreas the enzyme action of the duodenal contents will be notably diminished.

The result obtained in Case 7 (cancer of body and tail of pancreas) shows that cancer of the pancreas not involving the head of that organ did not produce achylia pancreatica, although about two-thirds of the pancreatic parenchyma were destroyed.

The findings at operation in Case 11 make the diagnosis of chronic pancreatitis seem certain; and the enzymatic activities of both specimens of duodenal contents were very little.

Autopsy and histopathological findings in the case of hemochromatosis (Case 12) demonstrated that the greater part of the pancreatic tissue was anatomically intact, although there was definite sclerosis and abnormal pigment deposition. Nevertheless, the enzymatic activities of the duodenal contents were depressed much below the minimum normal limits. These findings indicate that the depression in the secretory activity of the pancreas was partly the result of a functional disturbance. Case 13 was also one of chronic pancreatitis. The clinical findings in this case show that the pancreatic parenchyma had been extensively destroyed, and it seems warranted to conclude that but little external secretory activity remained. This explains the absence of enzymatic activities from the duodenal contents. The enzymatic activities of the duodenal contents from these three cases were all very low. These findings show that the external secretory function of the pancreas was depressed.

From the above discussion it would seem justifiable to conclude that the study of enzymatic activities of duodenal contents, ascertaining the activity of the external secretory function of the pancreas, may be of distinct value: 1, in diagnosing chronic pancreatitis; 2, in locating the site of the lesion in cancer of the pancreas; 3, in estimating the amount of destruction of pancreatic parenchyma in acute necrosis of that organ.

The findings in Cases 17, 18, 19, 20 and 28 of Table 3 show, that in the presence of obstruction to that portion of the bile duct lying proximal to the pancreatic duct, and in the absence

*Unpublished observations.

of pancreatic disease, no abnormalities in the enzymatic activities of the duodenal contents were demonstrable. When obstruction to the pancreatic duct (Cases 22, 23 and 24 of Table 3) existed, enzymatic activities of the duodenal contents were much below the minimum normal level. Such results indicate that the study of duodenal enzymatic activities may furnish laboratory findings of definite value in locating a lesion causing obstructive jaundice.

Duodenal contents were taken from Case 8 (cancer of the head of the pancreas) after the employment of magnesium sulphate solution on several occasions. It will be recalled that enzymatic activities in this case were much diminished, and that the duodenal contents apparently contained no bile. In Cases 22, 23 and 24 (stone in the ampulla of Vater), on the contrary, magnesium sulphate lavage was followed by marked increase in the bile content and the degree of enzyme action in the duodenal contents. In these cases the use of magnesium sulphate lavage, combined with study of enzymatic activities, of the duodenal contents gave findings in the presence of benign obstruction which were different from those obtained when the obstruction was of malignant character. The differences were so marked as to suggest that results obtained from the combined use of duodenal lavage and enzyme concentration studies will prove to be of value in differentiating between the two types of obstruction.

In obstructive jaundice the question frequently arises as to whether the cause is benign or malignant. The three most frequent sites of malignant disease causing jaundice, are primary cancer of the head of the pancreas, primary cancer of the biliary passages, and cancer of the liver secondary to gastric carcinoma. Cancer of the stomach can almost invariably be demonstrated by x-ray examination; cancer of the bile ducts will not usually allow bile to flow into the duodenum (Case 28); and cancer of the head of the pancreas will usually occlude the pancreatic duct and largely exclude pancreatic enzymes from the duodenal contents. Thus the estimation of the enzymatic activities of the duodenal contents would seem to be of distinct value in the diagnosis of suspected cancer of the biliary tract or of the head of the pancreas.

As we stated in the body of the paper, it was not proved that a stone or inflammatory swelling of the ducts did not obstruct the pancreatic flow in Case 25. For this reason the cause for abnormal enzymatic activities found in this case cannot be definitely given. At operation it was impossible to locate the common bile duct or pancreas on account of the diffuse inflammatory process involving the entire biliary tract. In Case 26, however, the clinical findings were quite different. This patient was not jaundiced at any time and no obstructive lesions were demonstrable on laparotomy. No obstruction to the pancreatic duct was demonstrable, and the abnormal enzymatic activities present

in the duodenal contents were probably the result of some other cause than parenchymatous destruction. It will be remembered that there was dissociation of enzymatic activities in this case, as well as in Cases 21, 29 and 30. These findings are comparable to those occurring in acute pancreatic necrosis (Cases 14 and 15) in which there was undoubtedly derangement of the external secretory function of the pancreas. For this reason it is considered probable that similar derangement existed in Cases 21, 26, 29 and 30, but until further experimental evidence is available, an exact interpretation of these anomalies cannot be made.

The results obtained in studying Case 15 (acute pancreatitis) suggests definitely that periodic estimations of enzymatic activities in the duodenal contents furnish a rational method of following the progress of cases of pancreatic insufficiency.

The question arises as to the need for the rather complicated and time-consuming processes of obtaining duodenal contents and of estimating their enzymatic activities. It has been urged that any secretory anomalies of the pancreas would be reflected in the stools, and that the examination of the stools would suffice. That such is not necessarily the case is evident from the findings in Case 11 (chronic pancreatitis) in which careful stool examinations were made on successive days following a Schmidt test diet.

All the examinations were negative. In several of the other cases here reported the stool examinations on house diet showed no evidences of abnormal digestion. In cases with a low sugar tolerance, furthermore, it is obviously inadvisable to feed proper test diets for satisfactory stool examination. Also, examination of stools will be of no aid in the diagnosis of pancreatic disease when bile is excluded from the intestines or when pathological conditions prevent the absorption of food from the small intestines. In addition, it is well known that bacteria always present in human intestines can duplicate all phases of enzyme digestion, so that it is conceivable that bacterial action alone could mask evidences of pancreatic disease as obtained from stool examination. In this connection it is of interest to note that McClure, Vincent and Pratt⁶ found that completely depancreatized dogs could often utilize a considerable percentage of protein and fat of food ingested. It seems clear, therefore, that pancreatic disease may not be evidenced by stool findings alone. In selected cases, therefore, the use of the methods described and used in this work will be found of aid in diagnosis and in following the progress of a given case.

CONCLUSIONS.

1. Abnormalities in enzymatic activities of duodenal contents, demonstrated by the methods and procedures used in the work here reported, were found: (a) in the presence of some organic lesion involving the pancreas primarily or sec-

ondarily; or (b) when clinical, operative or autopsy findings indicated the possibility of derangement of the external secretory function of the pancreas. It seems fair to assume, therefore, that such abnormalities show pathological involvement of the pancreas or its ducts, and that the involvement of the pancreas may be mechanical or functional in nature. If this assumption is correct, then it is justifiable to conclude that estimation of enzymatic activities of duodenal contents furnishes an index to the activity of the external secretory function of the pancreas.

2. In achylia gastrica and pernicious anemia no abnormalities in the activity of the external secretory function of the pancreas were demonstrable, as measured by the enzyme concentration of duodenal contents. These findings suggest that the presence of hydrochloric acid is not necessary in order to stimulate normal pancreatic secretory activity.

3. Under the experimental conditions used, enzymatic activity was not demonstrably affected by the presence or apparent absence of bile in the duodenal contents.

4. The external secretory function of the pancreas, as measured by the enzyme concentration of duodenal contents, was found to be much depressed in chronic pancreatitis.

5. Acute pancreatic necrosis, cancer of the head of the pancreas and lesions obstructing the pancreatic duct were accompanied by marked abnormalities in enzymatic activities of duodenal contents. Obstructive lesions caused great diminution, while acute necrosis usually caused dissociation in enzymatic activities.

6. Estimation of enzymatic activities of duodenal contents furnished findings of value in the differential diagnosis between benign and malignant lesions, causing obstructive jaundice.

7. Dissociation of enzymatic activities of duodenal contents are interpreted as showing derangement of the external secretory function of the pancreas.

8. Acute and chronic cholecystitis and infectious (catarrhal) jaundice were accompanied by dissociation of enzymatic activities of duodenal contents. This finding suggests that there was associated derangement of the external secretory function of the pancreas.

CASE REPORTS OF IMPORTANCE IN AIDING THE READER IN THE INTERPRETATION OF THE EXPERIMENTAL RESULTS HERE REPORTED ARE APPENDED.

CASE No. 7.—A. T., male, aged 48. E. S. 248869.

Admitted to Massachusetts General Hospital March 31, 1922, and discharged April 29, 1922.

Diagnosis: Carcinoma of pancreas (not involving the head). Diabetes mellitus (mild).

At operation the tail and body of the pancreas were found to be largely invaded by carcinoma. However, the head of the pancreas

was not involved and there was no demonstrable obstruction to either the pancreatic or bile ducts.

CASE No. 8.—W. E. H., male, aged 49. Med. No. 14946.

Admitted to Peter Bent Brigham Hospital December 7, 1921, and discharged December 31, 1921.

Diagnosis: Cancer of head of the pancreas.

Patient was a man 49 years of age, whose past medical history is essentially negative. During the past 18 months prior to admission to the hospital the patient had been troubled with malaise, lassitude and physical weakness. Jaundice had been present seven months. Onset had been painless and associated with dyspepsia, diarrhoea and excessive thirst. On physical examination the patient showed deep icterus and was much emaciated. The liver was markedly enlarged, the left lobe measuring 1.5 cm. below the costal margin in the midclavicular line. The surface of the liver was smooth and the edge firm. In the right upper quadrant, below the liver edge, a smooth, firm mass about the size of a lemon was palpable.

X-ray studies showed no abnormalities in the gastrointestinal tract.

Clinical examination of the blood showed a moderate degree of secondary anemia. Gastric analysis showed normal acidity. The urine and stools were those usually found in obstructive jaundice. Operation was refused.

CASE No. 9.—J. E. T., male, negro, aged 56. Med. No. 19653.

Admitted to Peter Bent Brigham Hospital May 22, 1922, and transferred to Surgical Service May 30, 1922.

Diagnosis: Carcinoma of head of pancreas (involving the common bile duct).

Past Medical History was essentially negative. The present illness began six weeks prior to admission to the hospital. During the first two weeks there were gaseous bloating of the epigastrium and epigastric distress at night; relieved by soda or hot water. The taking of food caused dull aching in the epigastrium, beginning five to ten minutes after eating and lasting from three to twelve hours. Jaundice developed four weeks prior to admission to the hospital, and was accompanied by pruritus and profuse sweats. Lying on the right side caused nausea. Slight dyspnoea had been present since the onset.

On physical examination the sclerae and skin were deeply jaundiced. The liver edge was palpable 5 cm. below the right costal margin; it was firm and irregular. There was moderate tenderness in the epigastrium, more particularly just to the right of the midline. There was right inguinal hernia. Otherwise the physical examination was negative.

Fluoroscopic examination demonstrated a concave defect in the outline of the lesser curvature

side of the antrum and first portion of the duodenum. This finding suggested pressure from without.

Hemoglobin was 88 per cent., white blood cells 9,000 and red cells 4,000,000 per c.mm. The smear was not unusual. Wassermann reaction was negative. Gastric analysis showed a moderately low free HCl and total acidity. Benzidin test was negative. The findings in the urine and stools were those usual in obstructive jaundice. At operation a large adenocarcinoma of the head of the pancreas, involving the common bile duct, was found.

CASE No. 10.—E. S. R., male, aged 40. W. S. 248407.

Admitted to Massachusetts General Hospital March 8, 1922, and discharged April 29, 1922.

Diagnosis: Acute pancreatitis. Chronic cholecystitis. Cholelithiasis.

The patient entered the hospital complaining of attacks of epigastric pain, vomiting and jaundice and of constipation. The past history was essentially negative.

During the past four years prior to admission to the hospital the patient had had attacks of severe epigastric pain, lasting about seven to twenty-four hours and accompanied by repeated vomiting of foul, greenish material, and by constipation. Such attacks occurred at intervals of four or five months. In one attack jaundice had occurred. The present attack had developed ten days before admission. The pain was paroxysmal in character, sharp in nature and located in mid-epigastrium. The bowels were constipated.

On physical examination moderate tenderness and muscular rigidity were found in the left upper abdominal quadrant, in the region of the gall-bladder. The patient was definitely jaundiced. X-ray of gall-bladder region showed shadows suggesting biliary calculi.

Laboratory findings: Hemoglobin was 85 per cent. and white cells 10,000 per c.mm. The Wassermann was negative. The findings of the stomach contents after an Ewald breakfast were normal. The stools were not abnormal and contained bile.

March 14. Operative note: The gall-bladder wall was thickened and showed an area of fat necrosis (also demonstrated microscopically in sections). The gall-bladder contained two stones and much dark fluid. The pancreas was found to contain areas of necrosis and the gastro-colic omentum showed areas of fat necrosis.

CASE 11.—F. H., male, aged 50. E. S. 250706. Admitted to Massachusetts General Hospital July 9, 1922.

Diagnosis: Chronic cholecystitis. Cholelithiasis. Chronic pancreatitis.

Patient entered the hospital complaining of epigastric pain and loss of weight.

The past history was essentially negative. Venereal infection was denied.

Present Illness: For the last six months the patient had suffered from attacks of epigastric pain, non-radiating, coming on at intervals of several days to weeks, with no apparent relation to meals. Pain was not severe until recently, did not cause vomiting, and was not severe enough to make the patient cry out. It never waked the patient up. It was relieved at first by walking about, but recently not relieved by ordinary procedures. There had been no jaundice, hematemesis, melena, urinary abnormalities.

During the last few weeks prior to admission, attacks have occurred several times daily, and have lasted from half an hour to several hours. There was no diarrhea or constipation. During the last six months the patient had lost about thirty pounds in weight.

Physical Examination: Well developed somewhat emaciated man. Skin very dark, where it had been exposed to sun and heat, but no abnormal areas of pigmentation. In the mid-epigastrium there was an indefinite mass, which was tender, not movable, pulsating but not expansile. In the right upper quadrant there was increased muscular resistance, but no definite mass was palpable.

Laboratory Findings: Blood and urine were essentially negative. The blood Wassermann was negative. Examination of the stools following a full Schmidt test diet was absolutely negative. X-ray examination of the gastrointestinal tract failed to show any abnormal findings, except that the stomach seemed to be pushed somewhat forward as if a mass was behind it. Barium enema was negative.

Operation: At operation a large, thickened gall-bladder was found, with a single stone in the cystic duct. The pancreas was enlarged and extremely hard throughout, and on palpation it seemed typical of advanced interstitial pancreatitis.

CASE 12.—J. E. O'M. Male, aged 43. E. M. 248570.

Admitted to the Massachusetts General Hospital March 15, 1922, and died April 4, 1922.

Diagnosis: Hemochromatosis. Chronic pancreatitis. Syphilis. Diabetes mellitus. Hypertrophic cirrhosis of the liver. Acute colitis. Bronchopneumonia.

Patient entered the hospital complaining of epigastric pain, dizziness, faintness, weakness and cough.

The patient has been a moderate user of alcohol. At the age of 18 he had pneumonia. Eighteen years prior to admission he had a bubo in the left groin. Nine years prior to admission a hard chancre developed on the penis, but no antiluetic treatment had been taken. No secondary eruption had been observed. Eight years ago there had been an attack of acute

arthritis, and, during the same year, an attack of malaria.

Present Illness: For ten years there had been vague, indefinite epigastric "pain" about 30 minutes after dinner and supper, lasting five to ten minutes. The "pain" radiated to the left axillary region and to the back. The "pain" occurred three or four times a week and was associated with nausea, occasional vomiting, and always with dizziness, faintness and weakness. During the two weeks prior to admission the epigastric pain had disappeared. For two months prior to admission the patient had an excessive appetite, marked thirst, polyuria and loss in body weight from 158 to 124 pounds. Two years prior to admission his family physician discovered glycosuria. In December, 1921, the patient had fractured a rib. Since then there had been a distressing cough which was unproductive until a week before admission. During this time sputum was raised. There had been no hemoptysis, but during the two weeks prior to admission night sweats had occurred.

Physical Examination: Emaciated. Skin dark, but no definite areas of pigmentation. Liver definitely enlarged, edge smooth.

Laboratory Findings: The hemoglobin was 70 per cent. White blood cells were 8000 per c.mm. Blood sugar was 0.3 per cent. on admission, but dropped to 0.1 per cent. on starvation. The blood Wassermann was positive.

On admission the 24-hour output of urine was between 3000 and 4000 c.c., and contained about 7 per cent. glucose. Under treatment the 24-hour amount dropped to 1000 to 1500 c.c. and the glucose to 1 to 2 per cent. With onset of fever, acetone and diacetic acid appeared in the urine. All stools examined were the result of enemas. These stools contained much pus and mucus.

During his stay in the hospital diarrhoea developed, and later bronchopneumonia, of which the patient died. Duodenal specimen was obtained on the day before onset of diarrhoea, and before the patient's condition became dangerous.

Autopsy Findings were typical of hemochromatosis, with marked pigmentation and fibrosis of the liver and pancreas.

CASE 13.—D. C. White, male, aged 54. E. M. 205738.

Admitted to Massachusetts General Hospital June 10, 1922.

Diagnosis: Chronic pancreatitis. Diabetes mellitus. The past history was essentially negative.

During the year 1915 the patient had had dull epigastric pain, coming on two or three times a week and occurring 30 minutes after the midday meal. The pain was relieved by hot water. At the end of this year, one morning, just after breakfast, the patient was seized

suddenly with severe, colicky epigastric pain, requiring morphine for its relief. This pain radiated around both hypochondriac regions to the back. It persisted for several days. The patient was then admitted to the Massachusetts General Hospital. On admission physical examination showed epigastric tenderness and spasm. The liver edge was palpable 2 cm. below the right costal margin. In the right hypochondrium a round, smooth, tender mass was palpable. The diagnosis of subacute perforation of the stomach was made. At operation acute pancreatic necrosis was found to be the cause of the trouble. The gall-bladder was normal.

Six months after the operation a large slough of degenerated pancreatic tissue was discharged through the fistula which had persisted after laparotomy. Since the time of operation up to the present date (June 15, 1922) the fistula has remained open. Since that time the patient had few subjective symptoms, except when full drainage from the fistula was interrupted. A few weeks prior to the present examination he was told there was sugar in his urine.

On admission, June 10, 1922, the patient complained of no subjective symptoms. The physical examination showed the fistula, and the liver edge was palpable 2 cm. below the right costal margin. The patient was 25 pounds under weight.

The usual clinical examinations of the blood were negative. Blood sugar was 0.2 per cent. Sugar tolerance test showed extremely high figures. The urine was negative (patient sugar-free on diet). The stools showed an excess of fat. The duodenal contents contained an excess of bile pigments, but showed no enzyme action.

CASE 14.—I. G. Female, aged 38. W. S. 247759. Admitted to the Massachusetts General Hospital February 1, 1922, and discharged April 5, 1922.

Diagnosis: Acute hemorrhagic pancreatitis. Acute cholecystitis.

Past medical history essentially negative.

Present Illness began three days prior to admission to the hospital, with sudden, moderately severe, colicky pain in the dorso-lumbar region, which soon spread over the entire abdomen. This pain was present on admission to the hospital. Although nausea had been constantly present, vomiting had occurred but once. There was anorexia and the bowels were obstinately constipated.

On physical examination the patient appeared to be in moderate discomfort. The abdomen was diffusely tender and spastic, especially in the midepigastrium. The temperature was 102, the pulse 110, and the respiration 24.

The blood count showed 10,000 white cells per c.mm. The Wassermann was negative. The urine was negative. Stools resulting from enemas were very light brown in color and con-

tained microscopically increased amounts of fat droplets and fatty acid crystals. At the time of the first examination of duodenal contents for enzymatic activities (two weeks after operation) the stools were normal.

Operative note, February 1, 1922: Considerable free fluid in abdomen, at first straw colored and then blood tinged. Spots of fat necrosis were everywhere seen and were most numerous in the gastro-colic omentum near the pyloric end. The pancreas was inflamed and showed three hemorrhagic areas and an area of fat necrosis 5 cm. in diameter. The gall-bladder was small and its walls thickened, and it contained bile and purulent material.

CASE 15.—J. F. M. Male, aged 30. W. I. 248024. Admitted to the Massachusetts General Hospital February 15, 1922, and discharged March 9, 1922.

Diagnosis: Acute hemorrhagic pancreatitis.

Since the age of 14 the patient had taken a cathartic daily for constipation; also, during this period there had been recurring attacks of obstipation, associated with abdominal distention and discomfort. During the three months previous to admission the patient had gained 24 pounds in weight, the abdomen had gradually enlarged, and dyspnoea on strenuous exertion had developed.

Present illness: For the past week before admission to the hospital the patient had been more constipated than usual, with some abdominal distress. Two days ago he developed great discomfort in the abdomen, described as a marked sensation of pressure over the entire abdomen. The night before admission this feeling was so pronounced that he "thought he would die." There had been no colicky pains. He had been well morphinized by his physician. During the past two days there had been frequent vomiting, and not even water was retained; there had been no fecal vomiting. The bowels had not moved, but an enema on morning of day of admission produced a moderate result and flatus was passed that same evening. On the night of admission the patient felt comfortable.

On physical examination the patient appeared to be but slightly ill. Shifting dullness was demonstrable in the flanks, but no other abnormalities were noted in the abdomen. Temperature was 100.6, pulse 110, and respiration 22.

Hemoglobin was 80 per cent. White cells were 22,300 per c.mm., with 90 per cent. polymorphonuclears. The Wassermann reaction was negative. The vomitus was dark green in color and strongly acid. Stools examined on February 24, 26, 28 and March 2 showed an excess of fat, but were not pasty in appearance. The urine showed a slight trace of albumin, and for the first few days after admission a slight trace of sugar.

Operation, February 16, 1922. The abdominal cavity contained blood-tinged fluid. The

mesentery and omentum were spotted with areas of fat necrosis. The pancreas "had a soft necrotic feeling."

Patient was discharged to Out-Patient Department, March 9. Sugar tolerance test showed normal findings two weeks after the third specimen of duodenal contents was obtained for enzyme studies.

Duodenal contents were examined on March 7, 30, April 13 and July 17. When last seen the patient was in fairly good condition, and was gaining weight and strength.

CASE 17.—A. J. McC. *Preoperative Diagnosis:* Cancer of the head of the pancreas.

Postoperative Diagnosis: Chronic cholecystitis. Cholelithiasis; stone in common bile duct.

April 9, 1921. Patient was a housewife, 61 years of age. She had been jaundiced for one week, one and a half years ago. Fourteen months ago the left breast had been removed because of a nonmalignant growth about 10 cm. in diameter. Patient had first noticed jaundice four weeks before admission, associated with anorexia, nausea, epigastric distress and some loss in weight. On physical examination the patient showed deep jaundice; the liver edge was, indefinitely felt 2 cm. below costal margin and the ascending colon was palpable.

Roentgen examination showed gastric hyperperistalsis and the second portion of the duodenum was moderately dilated.

From April 9th to 29th the jaundice remained unchanged. During that period the patient vomited all food taken up to April 22nd, after which date vomiting was less pronounced. The liver edge became palpable 4 cm. below the costal border. There developed a small, firm, nontender, egg-shaped mass, just below the edge of the liver in the midclavicular line.

Laboratory findings were essentially negative except for bile in the urine and fatty stools usual in obstructive jaundice.

On laparotomy, a large calculus was found in the ampulla of Vater. There was, however, no distention of the common bile duct, which did not contain bile. The gall-bladder was greatly distended, but the contained fluid was not bile colored.

May 13, 1922. The patient recovered and has been in good health to date.

CASE 18.—F. H. W. White female, aged 59. Med. No. 133791. Admitted to Massachusetts Homeopathic Hospital Nov. 26, 1921 and died Dec. 10, 1921.

Preoperative Diagnosis: Cancer of the head of the pancreas. *Postoperative Diagnosis:* Chronic cholecystitis, cholelithiasis.

The past medical history was essentially negative.

The present illness had begun four weeks prior to admission to the hospital. The earliest symptoms had been those of moderately severe dyspepsia, followed in a few days with jaundice

of the skin and sclerae. There had been no abdominal pain.

On physical examination the patient was seen to be deeply jaundiced. Her mentality was considerably dulled. The liver edge was palpable 3 cm. below the right costal margin. Its edge was rounded and its surface smooth.

The usual clinical examinations of the blood, including the Wassermann reaction, were negative. The urine and stools were those usual in obstructive jaundice.

At laparotomy a stone obstructing the common duct and located proximal to the ampulla of Vater was found.

CASE 21.—A. C. Italian male, aged 58. E. M. 249521. Admitted to Massachusetts General Hospital May 5, 1922, and discharged June 1, 1922.

Diagnosis: Chronic hepatitis. Chronic cholecystitis. Diabetes mellitus.

Past medical history was essentially negative.

Sixteen, fourteen, thirteen and twelve years prior to admission to the Massachusetts General Hospital the patient had had attacks of severe epigastric pain, associated with jaundice. Thirteen years prior to admission the gall-bladder region had been explored at laparotomy. Many adhesions were found about the gall-bladder, but no gallstones. The present attack was similar to those occurring in the past; and together with those occurring in the past was associated with a moderate degree of diarrhoea. During the three months prior to admission there had been polyuria and polydipsia; glycosuria had been demonstrated recently in the Out Patient Department of the Hospital.

On physical examination at the time of admission the patient's sclerae were jaundiced and he was considerably under weight. The edge of the liver was palpable at the right costal margin, while the spleen reached 4 cm. below the left costal margin.

Hemoglobin was 65 per cent., white blood cells 6,500 and red cells 5,544,000 per c.mm. Blood sugar was 0.2 per cent. The urine showed no bile; the stools did not show abnormal amounts of fat.

On May 10th, 1922, duodenal contents collected for enzyme studies contained much bile. At this time 60 c.c. of 33 per cent. magnesium sulphate were instilled into the duodenum. Duodenal contents were again collected on May 15, and contained much bile. At the time of the second collection the patient was not jaundiced, although the blood plasma contained an excess of bile pigment.

CASE 22.—M. N. Female, aged 52. W. S. 248135. Admitted to Massachusetts General Hospital February 21, 1922, and discharged April 5, 1922.

Diagnosis: Cholelithiasis. Chronic cholecystitis.

Complaint: Epigastric pain and jaundice of four months' duration.

Past medical history was essentially negative.

Present illness. Fourteen years prior to admission the patient had been "yellow sick" for six weeks. The present illness began four months before admission. During this period there had been attacks of severe pain, beginning in the right upper abdominal quadrant and radiating around the left costal margin to the dorso-lumbar region of the back. With the onset jaundice had developed and still persisted on admission to the hospital, although it had varied in its intensity. Anorexia was present and the patient had lost 17 pounds in weight.

On physical examination jaundice of the skin and sclerae was noted. Otherwise the physical examination was essentially negative.

X-ray studies of the gastro-intestinal tract were negative.

Hemoglobin was 80 per cent. and white blood cells 10,000 per c.mm. The Wassermann on the blood serum was negative.

Gastric analysis showed no free HCl and total acidity of 14. On February 26 the bile pigment in the duodenal contents was about one-third the normal amount and enzymatic activities were low. On February 28, the pancreatic enzyme action was normal. A solution of 33 per cent. magnesium sulphate had been instilled into the duodenum following the first examination.

Operation March 7, 1922. Gallstones were removed from the common duct, which was dilated. The gall-bladder was thickened and bound down by adhesions.

CASE 23.—A. J. B. Med. No. 17493. Admitted to Peter Bent Brigham Hospital December 31, 1921, and discharged January 23, 1922.

Diagnosis: Gallstones. Questionable syphilis.

Patient is a well-developed Hebrew of 47, who gives a definite history of syphilis, including primary and secondaries of 18 years ago, and also of central nervous system lues ten years ago. Adequate treatment had been taken; and on admission to the hospital the Wassermann on the blood serum was negative. Fourteen years ago the patient had been jaundiced for four days. The present attack of jaundice began six weeks prior to admission to the hospital and had progressively deepened. Associated symptoms were nausea one hour after meals and girdle pains of greatest intensity in the dorso-lumbar region, radiating to the shoulder blades.

On physical examination icterus was deep. The liver edge was 5 cm. below the costal border. The liver surface was smooth and the edge soft.

Röntgen examination showed the duodenum to be persistently flattened on its superior surface, and on this surface its outline was half-moon shaped. This finding suggested an extra-duodenal lesion. The large bowel was not unusual by barium enema.

The usual laboratory examinations of the blood and gastric contents were negative. The

urine and stools showed the findings usual in jaundice. Wassermann reaction on blood serum was negative.

Duodenal lavage, 33% $MgSO_4$, 50 c.c., on January 4 and 5; 400 c.c. and 320 c.c. of colorless fluid obtained. January 11, after a meal of 40 c.c. of 20% cream mixed with 10 gms. $BaSO_4$, the duodenal contents were light yellow in color (due to bile).

January 23, discharged; less jaundiced than on admission and in good general condition.

CASE 24.—M. W. Female, aged 53. W. S. 247363. Admitted to the Massachusetts General Hospital, January 12, 1922, and discharged February 11, 1922.

Diagnosis: Cholelithiasis. Chronic cholecystitis.

The past medical history was essentially negative.

Present Illness: Two years before admission to the hospital there had been an attack characterized by dull epigastric pain, some vomiting and much weakness. This attack lasted one week. Eight months before admission the patient had been studied on the Surgical Service of the Peter Bent Brigham Hospital. At that time she had been jaundiced for six weeks and complained of much dull pain in the right side of the epigastrium. The jaundice remained for nearly three months and then gradually disappeared. During the next five months the patient was free from symptoms, except for transitory, mild epigastric pain. The patient then became jaundiced again and entered the Massachusetts General Hospital.

Physical examination showed the patient to be somewhat emaciated. The skin and sclerae were jaundiced. The liver edge was palpable 3 cm. below the right costal border.

Hemoglobin was 75 per cent, and white blood cells 11,200 per c.mm. The urine contained very little bile and occasionally some sugar. The stools were light brown in color and microscopically showed large amounts of fatty acids (patient on a low fat diet). The duodenal contents contained much bile after the use of magnesium sulphate.

At operation the gall-bladder contained many stones and a stone was found in ampulla of Vater. The gall-bladder and bile ducts were markedly thickened, and the pancreas was hard and apparently fibrosed.

CASE 25.—N. M. Female, aged 53. W. S. 248020. Admitted to the Massachusetts General Hospital February 15, 1922, and discharged April 13, 1922.

Diagnosis: Cholelithiasis. Chronic cholecystitis. Chronic cholangitis.

Complaint: Attacks of pain under right costal margin, of seven to eight months duration. Past medical history was essentially negative.

Present Illness: During the seven or eight months previous to admission there had been

attacks of pain in the gall-bladder region. The pain was severe at times and radiated to the interscapular region of the back. The attacks usually occurred at night and lasted several hours. At times the stools had been white and the urine very dark in color. The right upper quadrant of the abdomen had been tender. For the past week the bowels had been constipated.

On physical examination icterus of the skin and sclerae was present. The patient was totally deaf. A mass about 3 cm. in diameter was palpable in the right epigastrium, with associated spasm and tenderness.

Hemoglobin was 95%. White blood cells were 18,800 per c.mm., with 82 per cent. polymorphs. The urine and stools were of the character usually found in obstructive jaundice.

Duodenal tube introduced on March 16th. After instillation of 50 c.c. of 33 per cent. magnesium sulphate the fluid obtained was colorless. Following this the cream meal was given and duodenal contents obtained for enzymatic studies.

Operation, February 23, 1922. The gall-bladder was imbedded in a mass of inflammatory tissue and was packed with gallstones. It was impossible to explore the common bile duct or region of the pancreas on account of the extent of the inflammatory process.

The patient was discharged nearly two months after the operation. During this time complete obstruction to the flow of bile into the duodenum remained and the jaundice was unchanged.

CASE 26.—A. F. Male, aged 61. W. S. 428283. Admitted to Massachusetts General Hospital March 1, 1922, and died March 9, 1922.

Diagnosis: Acute cholecystitis. Pylephlebitis.

Six years prior to admission the patient was sent to Westboro because of "nervous breakdown." During the past five years there had been occasional attacks of dyspepsia characterized by "sour stomach," belching and epigastric distress after meals.

Present Illness: Six days ago while at work patient was seized with a sharp, knife-like pain below the ensiform, rather spasmodic, but persisting without definite remission until the present. He was able to finish his day's work, but went to bed that evening and stayed there. The pain became duller, spread downwards and backwards over the abdomen and into the flanks, and was fairly constant. It was made worse by exertion and was not affected by vomiting or by movements of the bowels. He vomited twice that day, and vomited practically everything eaten since then, but never blood. The vomitus always tasted very sour. He obtained several loose movements a day by the use of salts. He felt feverish several times and sweat a great deal. His urine had been scanty and high colored.

On physical examination the skin was flushed

and moist. There was some dyspnea, although no cardiac lesion was demonstrable. Percussion demonstrated shifting dullness in the flanks. There was moderate tenderness along the right costal margin and in the mid-epigastrium.

The white blood count was 14,000 and 15,000 per c.mm. Wassermann was negative. Urine and stools were negative. On March 7 the duodenal contents contained a large excess of bile pigments and the sediment indicated inflammation of the entire biliary tract.

Operation, March 9, 1922. Distended and thickened gall-bladder, without stones, was found. It contained dark, tarry bile and was evidently infected.

CASE 28.—D. B. Male, aged 50. W. M. 247541. Admitted to Massachusetts General Hospital January 20, 1922.

Diagnosis: Obstructive jaundice. Carcinoma of the gall-bladder, bile ducts and liver.

Past medical history was essentially negative.

Present illness: Eight weeks before admission patient had an upper respiratory infection, followed one week later by jaundice. The jaundice did not clear up under treatment, and after five weeks' severe pruritus became an additional symptom. He went to a hospital, but showed no improvement after three weeks' care. On admission to the Massachusetts General Hospital the presenting symptoms were deep jaundice, pruritus, anorexia, fatigue and insomnia. There had been no abdominal pain at any time. Urine had been dark and stools clay colored since onset. There had been no fever or chills. About thirty-five pounds had been lost in two months.

Physical examination showed a well-developed, somewhat emaciated man, deeply jaundiced. The skin was deep greenish yellow and showed many abrasions from scratching. Liver dullness reached up to the 4th interspace and the liver edge was felt 1 cm. below the right costal margin. In the left epigastrium a small, round, movable mass was felt just under liver edge, moving with respiration; this was probably the gall-bladder.

X-ray studies of the gall-bladder and gastro-intestinal tract were negative.

Red blood cells were 3,984,000 per c.mm. and white cells 10,000 to 14,000 per c.mm. The differential count was normal. The Wassermann reaction on the blood serum was negative. The gastric analysis showed free HCl 29 and total acidity 60. Duodenal contents showed no bile after food or after the instillation of magnesium sulphate into the duodenum. The urine and stools were of the character usual in obstructive jaundice. Operation was refused.

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CONGENITAL OBLITERATION OF THE BILE DUCTS AND CONGENITAL BILIARY CIRRHOSIS OF THE LIVER.*

BY J. KEITH GORDON, M.D., BOSTON.

THE incidence of cases reported in the literature as congenital biliary cirrhosis of the liver *per se* is a comparatively low one. In most instances the condition has been associated with an obliteration of the main bile passages, with the result that the cirrhotic feature itself has been regarded as a secondary and perhaps less important process.

In 1911 Howard and Wolbach¹ reviewed the literature and succeeded in collecting seventy-six cases of congenital obliteration of the bile ducts, including a case of their own, and exclusive of those directly associated with syphilis. With the exception of nine of the earlier cases, a microscopical examination of the tissues had been a routine procedure and the constant accompanying finding had been a cirrhosis of the liver, the biliary type predominating. They divided the cases they encountered into the following groups:

- I. Obstruction of the hepatic and common ducts: gall-bladder and cystic duct patent.
- II. Obliteration of the gall-bladder and cystic duct; hepatic and common ducts patent.
- III. Obliteration of the cystic and hepatic ducts; common duct patent.
- IV. Obliteration at a variable point below the junction of the cystic and hepatic ducts.

The majority of these cases fell into Group III.

J. B. Holmes² in 1916 reported a case and made an exhaustive review of the literature on the subject. In addition to his own he cited 108 authentic cases of congenital obliteration of the bile ducts and by means of eighty excellent drawings representing the conditions as he found them showed diagrammatically at what point or points in the extra-hepatic biliary apparatus there might be an anatomical cause for interference with function. In reality these diagrams but represent in detail the broad classification of Howard and Wolbach with the addition of two conditions evidently overlooked by the latter writers, namely, the obliteration of the extra-hepatic biliary apparatus in its entirety, and a complete absence of any part or parts thereof. Holmes' lucid and concise diagrams are of particular interest to the surgeon, to whom he thus demonstrates how operative

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procedures in effecting a passage of bile to the duodenum would be possible in a fair percentage of cases.

In a series of 1086 consecutive autopsies at the Children's and Infants' Hospitals, Boston, there have occurred but four cases of congenital obliteration of the bile ducts. Briefly, the case histories and pathological findings of these cases are as follows:

Baby H. P., female, aged 5 months, was admitted to the Infants' Hospital on July 30, 1915, with the following history: The father and mother were living and well. There was one other child living and well. There were no deaths, stillbirths, miscarriages, or history of tuberculosis in the family. The patient was a full-term baby with normal delivery, and had always been breast-fed. He vomited constantly since birth. There had been no jaundice during the first two weeks, since which time jaundice had developed and had been progressive. Coincident with this the stools had been clay-colored and the urine dark. The baby had lost weight during the month prior to admission.

Examination of the patient revealed nothing abnormal except a generalized icterus with clay-colored stools and highly colored urine. Seven days after admission the liver and spleen became palpable. Bronchopneumonia developed and the child died on the 10th day after admission. An autopsy was performed thirteen hours after death and the following are the main features abstracted from the protocol: General icterus was present. The liver weighed 320 grams and was firm in consistency. Its surface was very irregular, having a fine hob-nailed appearance. The color of the peritoneal surface was a dark greenish purple. The cut surface showed a fine hob-nailed appearance similar to that seen on the peritoneal surface. Between the liver lobules there was a fibrosis which in the gross appeared as fine white lines. The gall-bladder had no cavity and presented as a mass of fibrous tissue. The hepatic, cystic, and common ducts were all obliterated, forming fibrous cords without any lumen. The papilla of Vater was not visible.

The spleen weighed 70 grams. There were patches of consolidation in both lungs.

Microscopically the liver showed a fibrous connective tissue increase, confined practically to the portal areas and about the lobules. The connective tissue did not extend extensively into the lobules, nor was it increased around the central veins. The bile ducts in the portal spaces were increased in number, but not dilated. Some of the larger ones contained bile casts. The capillaries also were increased in number. In some areas there was a rather extensive vacuolization of the liver cells.

Thus, in recapitulation, a female infant developed jaundice two weeks after birth. She

was admitted to hospital at the age of five months, was deeply jaundiced, and died ten days after admission. An autopsy revealed complete obliteration of the gall-bladder, and cystic, hepatic and common ducts. Microscopically the liver showed a biliary cirrhosis.

A case of this kind might constitute a possible Group V.

A second case, reported by Dunn³ in 1916, showed no gall-bladder or extra-hepatic duct pathology, but microscopically the liver gave evidence of a mixed type of cirrhosis, together with an extreme degree of degeneration of the liver cells.

This might constitute a seventh group.

A third case is as follows:

Baby F. B., female, aged 7 days, was admitted to the Infants' Hospital on May 10, 1919. The following history was obtained from the parents: The father, mother, and one other child were alive and well. There was no history of miscarriages. In April of the previous year a child had been born which became markedly jaundiced on the second day after birth and died three days later. The patient was a full-term baby, apparently normal at birth, but became jaundiced on the second day. The jaundice increased each day. The stools were white, and the urine highly colored. On examination the liver was palpated 3 cm. below the costal border and the spleen was also palpable. Except for a deep icteroid tinge to the skin, sclerae, and buccal mucosa, there were no abnormal physical signs. The child died soon after admission to hospital. An autopsy was performed, and the following are the main features abstracted from the protocol:

There was generalized icterus. The liver extended 3 cm. below the right costal border and 3 cm. below the ensiform. It weighed 175 grams and was moderately enlarged. Its surface was smooth and of a dusky red color. On section the lobular markings were indistinct and the cut surface had a yellowish cast to it. The hepatic veins contained fluid blood. The gall-bladder was narrow and shrunken, though containing about 2 c.c. of black mucilaginous bile. It was possible to pass a probe through the cystic duct in its entire length. The hepatic duct had a lumen too narrow for the smallest probe available. The common duct was represented by a narrow fibrous cord in which no lumen could be demonstrated either by expression of bile, passage of probe, or dissection. The other organs were not remarkable in the gross.

Microscopically the normal architecture of the liver was preserved, but there was moderate congestion and oedema separating the columns. There were acute degenerative changes in the liver cells in the mid and peripheral zones, with necrosis and invasion by many polymorphonuclear leucocytes. Inspissation of black bile in

the bile capillaries was prominent. Bile had also escaped from the bile capillaries and lodged outside the liver cells, where it was taken up in quantity by endothelial phagocytes. There was a slight increase in fibrous tissue about the portal areas, and this was infiltrated with lymphoid cells, eosinophiles, and a variable number of polymorphonuclears. The bile ducts were not dilated. Many contained plugs of brownish black bile and were lined by rather low epithelium. A few showed proliferation. There was no fat in the liver cells.

To sum up: a female infant developed jaundice on the day of birth. This condition increased until death occurred on the seventh day. On autopsy an obliteration of the common duct was found. The hepatic, cystic ducts and gall-bladder were patent. Microscopically the liver showed focal necroses and a mild type of biliary cirrhosis. The case corresponds with Group IV, according to Howard and Wolbach's classification.

The case history and pathological findings of a fourth case, which corresponds very closely to that of Dunn's, are as follows:

Baby S. W.,* aged 7 days, female, was admitted to the hospital in the service of Dr. Stone, on December 17th, 1921. The patient's father, mother and three brothers, aged 7, 12, and 15 years, were all living and well. There was no history of tuberculosis, syphilis, insanity, or hemophilia in the family, and the mother denied any miscarriages or stillbirths.

The patient was a full-term baby, delivered instrumentally, and had not been exposed to any of the acute exanthemata.

At birth the patient was noticeably jaundiced. She had been breast-fed until the day before admission, when she refused to nurse, since which time she had been fed breast milk with a bottle. The patient weighed 9 pounds, 9 ounces at birth. The stools had contained considerable mucus and at times had been gray. During the two days prior to admission, the stools had been black and had contained mucus. The urine had been highly colored since birth. On the day before admission some reddish-blue spots had been noticed on the body which were increasing in size.

Examination revealed a well developed and well nourished female infant weighing 8 pounds and 6 ounces. The skin, even by artificial light, was seen to be markedly jaundiced. There were ecchymoses over the left cheek, both elbows, right knee, and right breast. In the latter location the ecchymotic patch was two inches in diameter. The head was symmetrically shaped without points of tenderness. The sclerae, cornea and conjunctivae were of a yellow color. The pupils reacted to light and accommodation and the extra-ocular movements were well per-

formed. There was no discharge from the ears and no mastoid tenderness. There was no deformity of nor discharge from the nose.

The tongue was dry and along its margin were seen small discrete hemorrhagic areas. The pharyngeal mucous membrane was of normal color and the tonsils showed no evidence of previous or present involvement.

The heart and lungs were negative.

The edge of the liver was felt and percussed two fingers' breadth below the costal margin. Otherwise the abdomen was negative.

The nervous system, skeletal system and glandular system were all negative, and the genitalia and anus were normal.

An admitting diagnosis of congenital obliteration of the bile ducts was made.

On admission 25 c.c. of the father's blood was injected into the patient's buttock.

On December 19th, two days later, the patient had a spontaneous hemorrhage from the umbilical cord, which was clamped and tied after the loss of about one ounce of blood. Two hours later without warning the patient suddenly died.

An autopsy, which was performed five hours after death, revealed the following:

The body was that of a well developed and well nourished white female infant 46 cm. in length. The entire skin, sclerae, conjunctivae and buccal mucosa were of a most pronounced buff orange color. There were patches of ecchymosis varying in diameter from 1.5 to 6 cm. beneath the skin over both elbows, right mastoid region, dorsal surface of the hands, mesial surface of the left leg in its upper third, right patellar region, left internal malleolus, and left sub-scapular region. The umbilicus was about 1 c.m. in length and there was blood clot and small granulations over its distal extremity. Rigor mortis was present but incomplete. There was no post-mortem lividity present. The pupils were equal and measured 4 m.m. in diameter.

There was an absence of free fluid and adhesions in the peritoneal cavity, and the lesser peritoneal cavity was free. The peritoneal surfaces were all moist and glistening, and the organs were all in normal position. The liver extended 4 cm. below the costal border in the right mid-clavicular line, 3 cm. below the costal border in the left mid-clavicular line, and 3 cm. below the ensiform cartilage. The foramen of Winslow was patent, there were no tumor masses or enlarged glands pressing upon the hepatic ducts and vessels, and the latter could be readily recognized and identified *in situ*. The diaphragm extended to the level of the fourth rib on the right side and to the level of the fifth rib on the left. The appendix measured 3 cm. in length and was free. There was no enlargement of the mesenteric lymph nodes.

The thymus weighed 17 grams and was re-

*From the Surgical Service of the Children's Hospital, Boston.

markable only in that it was of a yellowish golden color. There were no enlarged mediastinal lymph nodes. The lungs were collapsed. There was no fluid nor adhesions in the pleural cavities. The pleurae were of a yellowish golden color.

There were no adhesions and but a few c.c. of clear yellowish fluid in the pericardial cavity. The pericardium was of a yellowish golden color.

The heart weighed 33 grams. The epicardium was smooth and glistening and of a yellowish golden color. There was no increase in the amount of epicardial fat. The myocardium was of a pinkish red color tinged with yellow and firm in consistency. The endocardium was smooth and glistening, and of a yellowish golden color except for a small area on the line of closure of the anterior segment of the mitral valve, where there were three minute scattered dark red raised smooth and glistening points, which were evidently foetal vascular remains in the endocardium. Otherwise the valves were normal. The foramen ovale was closed and the coronary orifices were patent.

Measurements: T.V. 4 cm.; P.V. 2 cm.; M.V. 3 cm.; A.V. 2.2 cm.; L.V. 6 m.m.; R.V. 3 m.m.

The combined weight of the lungs was 45 grams. The right lung was smooth and glistening externally and of a yellowish color. It was crepitant throughout. The cut surface was of a yellowish salmon pink color and there were no gross signs of consolidation. The left lung resembled its fellow on the opposite side except that at the apex of the lower lobe there were a few small scattered reddish ecchymoses beneath the visceral pleura.

The spleen weighed 15 grams. Externally it was of a deep magenta color and the capsule was slightly wrinkled. In consistency it was firm. On section it cut with increased resistance and seemed somewhat rubber-like. The cut surface was of a dark brownish red color and the lymph follicles were not visible. The pulp did not serape.

The entire gastro-intestinal tract was of a yellowish golden color. The intestinal contents were of a grayish color streaked with black. Otherwise it was not remarkable.

The pancreas was of a yellowish golden color, but otherwise not remarkable. The pancreatic duct of Wirsung was patent.

The liver weighed 280 grams. Externally it was smooth and glistening throughout and of a muddy brown color. The shape, relative size of the lobes, and position of the fissures were normal. In consistence it was firm. On section the organ cut with slightly increased resistance and the cut surface was of a muddy brown color with small irregularly shaped patches of a lighter brown scattered throughout. The gall-bladder was collapsed. It was possible to pass a probe from the papilla of

Vater both into the gall-bladder and to the liver, thus proving that the common, hepatic, and cystic ducts were patent. There was no foreign body present. When normal saline was injected through a cannula into the common bile duct it was seen that the fluid emerged from the larger intra-hepatic ducts on the cut surface of the liver, thus intimating that the main bile tributaries were patent.

The combined weight of the kidneys was 33 grams. The foetal lobulations of the left kidney were well marked. Its capsule stripped easily, leaving a smooth and glistening muddy brown surface. On section the cortex was of a muddy brown color and measured about 4 m.m. throughout, bearing a normal ratio to the thickness of the medulla. The latter portion was of a yellowish red color. The pelvis and ureter were of a yellowish golden color, but were otherwise not remarkable. The right kidney resembled its fellow on the opposite side in every respect.

The adrenals were somewhat enlarged. On section the left adrenal appeared normal, but in the medullary portion of the right adrenal there was considerable dark red clotted blood.

The genitalia were negative.

The aorta was of a yellowish color, but otherwise negative.

The dura surrounding the spinal cord was of a light golden brown color, but the cord itself appeared normal.

An examination of the head was not permitted.

PATHOLOGICAL HISTOLOGY.

Liver: Microscopically this organ showed a slight increase in the amount of fibrous tissue surrounding the portal areas. It varied slightly in amount in different locations, but not a single portal area had escaped the process. Accompanying this fibrosis, there was a cellular reaction which consisted of relatively large numbers of eosinophiles, together with some mononuclear wandering cells, large and small lymphocytes, and a few polymorphs. This process did not extend in between the liver cells or columns, but remained more or less localized and appeared to produce a crowding of the neighboring liver cells rather than their destruction. The appearance of the bile ducts varied in different fields. Some were definitely patent, with empty gaping lumina; others appeared to be compressed, yet their lumina were patent and empty; while a great many were occluded by casts of inspissated bile. In not one instance, however, was there a flattening of the lining epithelium of the ducts, nor could any actually obliterated ducts be found. Serial sections through the liver showed that though the smaller bile twigs pursued a somewhat tortuous course they finally established a connection with the liver columns. About

some of the central veins there was a fibrous connective tissue increase, accompanied by an occasional eosinophile and lymphocyte, but to a much less marked degree than that seen at the periphery of the lobules.

There was considerable phagocytosis of bile by the endothelial cells and also by some mononuclear phagocytes lying within the sinusoids.

The liver cells themselves showed a marked stippling of their cytoplasm, with basic staining granules of irregular size and shape. Sections stained with Best's carmine stain showed that this latter phenomenon was due to the presence of an excessive amount of glycogen within the cells.

Pancreas: There was an increase in the amount of interstitial tissue separating the acini which amounted to a diffuse cirrhosis of a mild type. This fibrous connective tissue was accompanied by an occasional eosinophile and lymphocyte. The majority of the smaller ducts had their lumina occluded by acid-staining homogeneous colloid-like casts of what was evidently pancreatic secretion, and some of these gave evidence of being distended by the fact that their lining epithelium was flattened. The larger ducts were normal and the cells of the acini and islands were likewise.

Kidneys: The collecting tubules were filled with brownish colloid-like casts, but with the exception of this and a diffuse staining of the tubular cells with bile the organs were normal.

Adrenals: There was a marked degree of hemorrhage into the medullary portion of the right adrenal.

Spinal Cord: This was essentially normal, but remarkable in that it was the only tissue of the body examined which showed no evidence of icterus.

Sections stained by Wolbach's modification of Giemsa stain in order to demonstrate microorganisms in the tissues showed no direct evidence of infection.

Thus, to summarize, a female infant was markedly jaundiced at birth. On the 7th day, she was admitted to hospital and died very suddenly two days later. An autopsy revealed generalized icterus and patulous extra-hepatic duct and gall-bladder. Microscopically the liver showed a biliary cirrhosis and the pancreas a fibrosis.

There are then, with minor variations, seven anatomical possibilities which embrace the condition known as congenital obliteration of the bile ducts, and they are as follows:

I. Obstruction of the hepatic and common ducts; gall-bladder and cystic ducts patent.

II. Obliteration of the gall-bladder and cystic duct; hepatic and common ducts patent.

III. Obliteration of the cystic and hepatic ducts; common duct patent.

IV. Obliteration at a variable point below the junction of the cystic and hepatic ducts.

V. Obliteration of the gall-bladder and cystic, hepatic, and common ducts.

VI. Complete absence of any part or parts of the extra-hepatic biliary apparatus.

VII. Obliteration of the intra-hepatic ducts with patulous gall-bladder and extra-hepatic ducts, *i.e.*, a biliary cirrhosis of the liver.

It can be seen that when the condition is such as exists in Groups II and IV, surgical procedures, if attempted, might be successful in producing a restoration of the normal mechanism. Reports in the literature of such cases are extremely rare, however, owing, perhaps, to the fact that a comparatively small percentage of all cases recorded fall into Groups II and IV, and that the majority were unsuitable for operation, that the accompanying cirrhosis was of such an extent and nature as to cause bile stasis of itself even after the obstruction in the extra-hepatic ducts had been relieved, and that operation was only performed as a last resort when the patient was in a moribund condition. Nevertheless, in view of the otherwise hopeless outlook, it can be reasonably stated that surgical interference is advisable in all cases wherein a positive diagnosis of congenital obliteration of the bile ducts has been made.

In regard to the pathogenesis of the condition, it is interesting to note that Thomson¹ in 1892 regarded the process as arising from a primary congenital malformation of the duct, which caused a catarrh and a complete blocking of the same. This in turn led to a damming back of the bile and a cirrhosis of the liver.

Rollleston,² writing in 1905, held that the cirrhosis was the primary condition, and that a cholangitis was produced which descended to the larger ducts and brought about an obliterating fibrosis. He supported his views with the arguments that although there was a constant cirrhosis accompanying obstruction of the bile ducts in infants, in adults cirrhosis of the liver did not accompany aseptic obstruction of the bile ducts, as in the case of carcinoma of the head of the pancreas; also, that the enlarged liver found in these cases resembled the hypertrophic cirrhosis of Hanot; that the spleen was generally found to be enlarged, a feature absent in uncomplicated biliary obstruction; and, finally, that in some instances several cases had been noted to occur in the same family. He still believes that "biliary obstruction *per se* does not constantly cause any form of cirrhosis; but with infection of the obstructed ducts pericholangitis may lead to hepatic fibrosis."³

Lavenson,⁷ in reporting a case of congenital obliteration of the bile ducts with cirrhosis of the liver, in 1908, made a survey of the literature and came to the following conclusions:

(1) That in the congenital condition, of which the two most prominent features are an obliteration of some portion of the bile ducts and a more or less extensive degree of cirrhosis of the liver, the obliteration of the ducts is the primary condition and the cirrhosis is a result of the ensuing biliary stasis.

(2) That the term "atresia of the bile ducts" better expresses the existing condition than "obliteration of the bile ducts." Laveson thus stands in direct opposition to the views of Rolleston, whose arguments he attacks by asking why the descending cholangitis is not found more often as a result of the Hanot's cirrhosis in adults, and why the obstruction in infants is most commonly in the hepatic portion of the ducts. This latter fact was not borne out by Howard and Wolbach's thorough analysis, however, as I have already mentioned. Laveson disregards the enlarged spleen that Rolleston mentions as not having any bearing on the subject, and claims that in a thorough search he could find in the literature but one case in which there was an occurrence of the same disease in one family, and that this had undoubtedly been syphilitic in origin. In support of the congenital malformation theory he shows how faulty union of the two rudimentary portions of the ducts is embryologically possible, and that in a few cases additional congenital defects were noted at autopsy.

For the reason that the rather intricate development of the liver and bile ducts allowed of infinite possibilities in the way of congenital malformation, Holmes, who made the last important contribution on the subject, concluded as follows: "Accumulating evidence tends to show that the condition is usually a developmental anomaly and not the result primarily of inflammatory processes." He believed that the cirrhosis in every instance was a result of the obstruction in the main ducts, and thus regarded Rolleston's theory as lacking in support.

None of the above writers make mention of a case similar to Dunn's nor to the one herein reported by myself, both of which lean towards the likelihood of a non-infectious agent being the etiological factor, and which likewise tend to favor the theory of a cirrhosis being primary to the obliteration of the ducts, for although in cases where congenital obliteration of the extra-hepatic ducts occurs there is a constant accompanying cirrhosis, the converse of the rule on the other hand does not hold true. In other words, congenital cirrhosis of the liver does occur without obliteration of the extra-hepatic ducts.

Doubtless the etiological factor may be either a pure congenital malformation or a pure inflammatory process, or possibly, as might often be the case, a congenital malformation with an inflammatory process grafted on. From the standpoint of treatment and prognosis the mat-

ter appears of little import. The fact that a biliary cirrhosis of the liver is constantly present would seem to be the most perplexing factor, for although it is highly probable that this type of cirrhosis is not a progressive one, it is also apparent that in some of its forms, as was found in the case reported above, it is incompatible with life.

To separate congenital biliary cirrhosis of the liver and congenital obliteration of the bile ducts as distinct pathological entities seems unnecessary, since their connection is such an intimate one and so apparent is it that they are the end-result of the same etiological factor or factors, whether found separately or combined. Since the cirrhosis is the constant feature it would almost appear that the term "congenital biliary cirrhosis of the liver" is a more logical appellation for this condition than that of "congenital obliteration of the bile ducts."

CONCLUSIONS.

1. That, from a review of the literature, a mild or severe degree of cirrhosis of the liver constantly accompanies congenital obliteration of the bile ducts.
2. That a congenital biliary cirrhosis of the liver can occur without congenital obliteration of the bile ducts, and is, therefore, not a result of the latter.
3. That in view of the otherwise hopeless outlook, surgical interference is advisable in all cases wherein a positive diagnosis of congenital obliteration of the bile ducts has been made.

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THE PROBLEM OF THE TUBERCULOUS SUSPECT.

BY JOHN B. HAWES, 2ND, M.D., BOSTON.

I HAVE chosen this subject of the "tuberculous suspect" because I believe that it represents a weak point in our endeavors to diagnose tuberculosis in its early stages.

Patients suspected of having tuberculosis may be divided roughly into three classes, only one of which I shall consider here.

The first group comprises many ex-service men who are called, "Tb. suspects." Although they constitute a difficult and trying problem, it is not one which often directly concerns the general practitioner, but is almost entirely in

the hands of the Veterans' Bureau or the Public Health Service.

The second group consists of those patients whom we all are constantly meeting in our private practice. This group is a large one or a small one, according to the diligence and skill of the physician and the impression he is able to make upon his patient as to the seriousness of his case. This group, likewise, I shall not consider here.

The third group to which I would call your attention consists of those patients,—men, women and children,—who attend our out-patient departments and dispensaries and in whom a provisional diagnosis of tuberculosis is made. It is a comparatively small and fortunate few who are given a definite diagnosis on the first visit. I have always maintained that the man who came in to an out-patient department and whose sputum was at once found to be positive to tuberculosis or who had a large hemorrhage while at the clinic might well be considered fortunate, simply because in his case the diagnosis was at once established and adequate treatment instituted. There are many, however,—the great majority indeed,—in whom the diagnosis is not so clear and who are, therefore, asked to return for x-ray examination, and with temperature and pulse records, sputum, etc. In such instances, the diagnosis usually put down on the patient's record is "Ph.?" These patients are always asked to return for further examination, but in far too many instances they do not return. The solution to this problem is not an easy one. The present situation as it exists in my own city is not satisfactory and I believe that the same situation exists elsewhere.

Early in the year 1921, when I became President of the Boston Tuberculosis Association, the first problem that I asked my Executive Committee to undertake was in regard to this point. I had often asked myself what became of the men, women, and children in whom I, for instance, at my clinic at the Massachusetts General Hospital, had made a provisional diagnosis of pulmonary tuberculosis and had asked to come back in a week for further study, but who never came back. What happened to them? Did they go to other dispensaries or to private doctors, or did they drift along until they reached the advanced stages of this disease? In far too many instances, the latter, I fear, was the true answer. At all events, I persuaded my Executive Committee to allow Miss Billings, the Executive Secretary of our Association, and myself to conduct a survey of the city with this point in view. A careful and detailed study was made of all patients in whom there had been a definite diagnosis or a provisional diagnosis of pulmonary tuberculosis at the six large out-patient departments and dispensaries of the city of Boston. The present condition of every one of those patients who came to these out-patient

departments from April, 1920, to April, 1921, was investigated.

The following was found to be the situation concerning the tuberculous suspect. Out of a total of 963 patients included in this study there were 415 in whom a provisional diagnosis of pulmonary tuberculosis had been made. From their histories it was evident that the great majority of these had been advised to return for further examination, but that in comparatively few instances had this advice been followed up by home visits, with the result that none of these 415 patients returned for a definite and final diagnosis to the out-patient department in which the provisional diagnosis had been given. There were 140 who afterwards visited some other institution or a private physician and were re-examined; 92, or 69 per cent., of whom were definitely diagnosed as having pulmonary tuberculosis and so reported. Even deducting this group, however, there remains a large number, 338, or 45 per cent. of the original 963 patients, who were strongly suspected of having tuberculosis, but who, so far as could be determined from the records, had never been re-examined or been given a definite diagnosis one way or the other. These patients were not known to the various social service departments of these institutions, nor had they ever been referred to any central office for purposes of record. It is clearly evident that these 338 patients who are now classified as unknown are in urgent need of home visiting and re-examination. This is a group of patients which ought not to exist, and which, if it must exist, should be reduced to the lowest possible figure. The following are two striking examples of what may happen, and indeed what has actually happened to some of these neglected provisional cases.

CASE A. This patient was given a provisional diagnosis of pulmonary tuberculosis in an out-patient department July 22, 1920. He was entirely lost track of until reported November 4, 1920, by a private physician. He died 15 days later, November 19, 1920.

CASE B. In this case a provisional diagnosis of pulmonary tuberculosis was made at one of the out-patient departments June 15, 1920. He was not heard from again until he was reported by another hospital, April 6, 1921, as having a chronic fibroid phthisis.

At a meeting that I asked Dr. F. X. Mahoney, Health Commissioner of the city of Boston, to call to consider this subject, representatives of the administrative staff and of the social service departments of the six institutions concerned were present. The question was raised as to whether the problem of the tuberculous suspect was really as big as my figures appeared to make it. There was a feeling that after all the majority of these suspects would turn out not

to have consumption. This is a pleasant and optimistic attitude, but, unfortunately, not a sound one. The mere fact that of the 140 suspects in whom the diagnosis was finally settled one way or the other, 69 per cent. turned out to have pulmonary tuberculosis, is sufficient to demonstrate that the problem is a real one.

What are we going to do about it? Various points are absolutely clear and certain to me. In the first place, my investigations demonstrate clearly the advantage of the "one-man" or "two-man" special clinic. The number of patients with a provisional diagnosis who never showed up again was infinitely greater at those general out-patient departments and dispensaries where everything medical is thrown into one large group with doctors in attendance, serving three or four months, than it is in the special clinics where lung cases only are seen, and where the same man or the same group of men are in attendance all the year round. At the clinic of Dr. E. O. Otis, for instance, where, at the Boston Dispensary, he has been in charge for years, there were few such provisional diagnoses, as was also the case, I am glad to say, at my own clinic at the Massachusetts General Hospital.

Next to this, and of no less importance in solving this problem, I would mention the social service departments. Every one of these "Th. suspects" should be automatically referred to the social service department for home investigation and, particularly, to see that the patient returns for further examination.

Finally, there should be some department or organization which should act as a clearing house to keep track of these patients. I would suggest, for instance, that as soon as such a provisional diagnosis is made, the patient's name and address be recorded at this central office just as positive cases now are. A record of such provisional cases coming from various dispensaries or hospitals in the city would give much more information concerning them than we now have and would prevent much duplication of effort and would permit of their being checked up should they go to another clinic.

The provisional diagnosis of tuberculosis is an unsatisfactory one and one which ought not to exist in large numbers. Some such system as I have outlined above, I believe, will help to reduce the number.

THE EDUCATION OF THE TRAINED NURSE.

BY CHANNING PROTHINGHAM, M.D., BOSTON.

At the present time there are many problems in regard to trained nurses which are unsettled. It is obvious from studying the different opinions set forth by those interested in the nursing profession that there is no unanimity of opinion in regard to the proper solution for various

ones of these problems. The question of the proper type of education for the trained nurse is one that has received considerable attention recently and presents possibly one of the most unsettled points in regard to the nursing profession.

In order to decide what is the proper education for the trained nurse it is important to have a clear conception of just what position the trained nurse should fill in the community. In this regard it is interesting to note the marked change in the possibilities for service which exist for the trained nurse of today in comparison with the trained nurse of only a few years ago, for the nursing profession is a relatively young profession.

At the start the nursing profession called for the training of young women so that they could assist in the care of sick people under the direct supervision of physicians. It was not expected that the trained nurse should assume much, if any, responsibility. At the present time there still exists as perhaps the most important function for the majority of trained nurses the care of the sick in the hospital or the home under the direct supervision of the attending physician. In this position it is not perhaps necessary for the trained nurse to assume much responsibility, nor need she have appreciable knowledge of disease and symptoms, provided the case is so situated that medical attention may always be within easy call.

As, however, medical attention is frequently not available on the instant in many hospitals and homes the nurse even in this capacity must assume more and more responsibility, and in order to do so properly it is advisable for her to have a fair knowledge of certain types of symptoms. Also numerous other opportunities for service exist for the trained nurse today in which she has to work more independently of the physician and has to assume considerably more responsibility. To do this properly the nurse must have more general knowledge of symptoms and disease than if she simply is caring for the sick under supervision. An example is the district nurse who goes out among the people in their homes and who may have to wait several days before a physician is able to visit the home, and who frequently has to decide as to the need for the physician's visit. Another example is the industrial nurse who works in manufacturing establishments and must in many cases assume the responsibility of deciding whether the particular case should see the physician, and also do a considerable amount of minor surgical work on her own initiative. Still another example is the Red Cross nurse who in responding to emergency calls must of necessity assume responsibility because, as she is working at a time of emergency, the probability is that sufficient medical supervision will not be available.

In the field of preventive medicine the trained nurse again has many opportunities for work in which she must assume a certain amount of responsibility and initiative, as, for example, the public health nurse, the dental hygiene nurse, the school nurse and the child welfare nurse. The names attached to the nurses are in themselves explanatory of the character of the work which they do, and no attempt in this short article will be made to go into the details of these various positions, or to enumerate all of them.

The trained nurse of today is frequently trained to be an anesthetist, and experience shows that a nurse trained in the giving of anesthesia with long experience can do it in a much more satisfactory manner than the young physician or medical student who has, perhaps, more theoretical knowledge in anesthesia, but has not had the practical experience. Many surgeons prefer a nurse for an operating assistant. The opportunity for work as laboratory assistants in research work is now open to the trained nurse. All of these positions should be more ably filled by the more broadly educated woman.

In addition to opportunities for work as described above which, although under the supervision of the medical profession, call for the assumption of responsibility and initiative on the part of the nurse, the trained nurse of today must be equipped to take the initiative in certain fields without any supervision, such as the position of teacher in training schools for nurses, and the position of educator of the public in matters of public health and hygiene. Furthermore, trained nurses have been and are successful administrators of hospitals. No attempt will be made to summarize all the possibilities that are open to the trained nurse along these lines at the present time. The ones mentioned above seem to make it clear that the trained nurse of today is called upon for many more different duties than the trained nurse of only a few years ago, and it seems likely that in the future the opportunities for the trained nurse for various types of service will continue to increase.

It is, therefore, quite evident that in educating young women in the nursing profession at the present time it is necessary to train them not only so that they will be equipped to care for sick people under direct supervision of the medical profession, but also so that they will be equipped to act as independent workers in various fields and as educators and leaders in certain positions.

The character of the education of the nurses in the training schools has also been undergoing a change during recent years. There is less drudgery in our better training schools. It is felt that the physical upkeep of the wards belongs to chorewomen and hired help rather than

to the pupils of the nursing profession. The hours for the pupils in the schools are shorter, so that there is more opportunity for general mental development. More general knowledge as preliminary to training is required of the pupil nurse, and more general education is given them during their course in many schools. The curriculum in the training schools in regard to general and special medical knowledge has been steadily enlarged. In fact, the question has been seriously considered whether the training school for nurses should be united with the university and at the end of a three or four years' course some degree similar to the Bachelor of Arts should be given.

Of course, all training schools throughout the country have not been able to advance their standards in the same degree, but the trend among the better schools has been in this direction. The result of this change in the education of the trained nurse has been that the nurse of today has a better general education, is better drilled on general health problems, and knows more about disease in addition to her training in the art of nursing than the trained nurse of a few years ago. Like other people who have put in considerable time on education, she expects more financial return per hour for her services than her less well-educated sisters.

Granting that the opportunities for service for the trained nurse of today are more varied than formerly, and also that the method of educating nurses has considerably changed and is still in a transition period, it is important to make a careful analysis of the situation in order to determine if the product of the training school of today is able to supply the needs of the community for the various nursing opportunities which exist. In regard to those opportunities for trained nurses which require leadership, initiative, assumption of responsibility and independent work, there can be no doubt but that the better educated the nurse is who undertakes this work the more successful she will be at it, other things being equal. Therefore the increase in the curriculum for the trained nurse in the better training schools seems to be a step in the right direction toward supplying nurses for these positions.

In regard to those opportunities for trained nurses which consist in care for the sick under supervision, it seems obvious that the better educated the nurse is who does this work the more successfully she will do it. In some quarters it has been suggested that the nurse with the more elaborate training does not do the actual nursing care so well, but it seems as though this must be simply individual variation rather than the result of too much extra knowledge. There seems to be no definite proof that education destroys one's ability in the nursing art, and, therefore, increased education for the nurse should give a better product for this

purpose also. From the viewpoint of the nurse's efficiency, therefore, it seems quite certain that the more highly educated product of our better training schools is better equipped than the nurses trained less well to care for all the needs of the community for trained nurses.

Unfortunately, however, on account of financial reasons, a large number of individuals feel unable to hire these highly educated nurses, who properly demand a larger financial return, and, therefore, today there is a need for nurses to care for those with limited financial resources who become ill. That the less broadly trained woman can care for the sick in a perfectly satisfactory manner under supervision has been amply proved by the past experience in the nursing profession, and, of course, a woman who has not spent so much time in preparation can hardly expect so large a financial return. If, therefore, this highly trained woman, although desirable, is not necessary for the proper care of the sick, and if she is without the reach of many, the trend in regard to the education of nurses is going to leave a need in the community unless some provision is made to supply individuals trained sufficiently to fill this gap.

Assuming for the moment that the preceding summary of the situation in regard to the opportunities for nurses, in regard to the education of nurses, and in regard to the needs of the community for nurses is correct, in what manner should our training schools organize in order to fulfil the needs of the times? The education of the pupil nurse should be kept at the present high plane that it is in our leading schools, with the idea of eventually placing the training school upon a university basis so that the work will lead toward an academic degree of some sort. With this foundation, our best trained nurses will be able to properly fill the numerous positions that are open to them. In addition, it is important that our training schools should turn out a class of women who are trained sufficiently to care for sick people under medical supervision, either in the home or in the hospital.

The details of how to accomplish this must be worked out by those who make a study of the nursing profession. Various possibilities suggest themselves. There might be a fundamental two-year course in nursing, at the completion of which some sort of a title is given to the individual. After the completion of this two years' course a woman can decide whether she will then go out into the world as a practical nurse, to care for the sick, or whether she will continue her studies along some special line, to prepare herself for some of the various fields, open to the trained nurse, which require more elaborate training. Probably at least another two years should be spent in this special preparation and study, and it would be at the end of this two years' work that some academic degree might be given.

Another possibility is the dividing up of the training schools into classes. Those training schools allied with universities and in the larger centers could give a longer course, with considerably more special instruction, with the object of preparing women for the positions that require initiative and leadership. Those schools with less equipment and situated away from these opportunities could offer shorter courses which would train women to care for sick people under supervision. The appropriate titles for these individuals and their relations to the various laws for registration of nurses would require thought and adjustment.

The main points which it has been attempted to emphasize in this short communication are: First, that the opportunities open to the trained nurse at the present time are such that it is important that her education should be extended rather than limited; and second, that although a nurse trained in this manner is probably better suited to care for a sick individual under supervision, she is educated more than is necessary for this work, and also commands a financial return which puts her out of the reach of a great number of people. Therefore it is important for those interested in supplying the community with individuals to care for the sick to provide some type of individual trained well enough to care for the sick person at a price which is within the reach of the great majority of the people.

THE STATES HAVE NOT MET THEIR OBLIGATIONS TO CHILDHOOD.

Notwithstanding the fact that nearly every State has put into its constitution the fundamental principle of the State's obligation in public education, there is not a State in the Union which has yet complied with these plain provisions and given to the boys and girls an equality of opportunity in education. Those who live in the country districts have not been provided facilities for obtaining an education which are in any respect the equal of the facilities which have generally been provided in all populous centers.

There is no other institution in America which has made so little progress in the last century as the rural school. Is this great, rich nation to tolerate this condition of affairs for another century? Or shall we comply with the plain demands which have been determined to be the American policy in education?—Thos. E. Finegan, State Superintendent of Public Instruction, Pennsylvania.

Where the State has bestowed education the man who accepts it must be content to accept it merely as a charity unless he returns it to the State in full in the shape of good citizenship.

Theodore Roosevelt.

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THE MEETINGS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The American Association for the Advancement of Science will hold its annual meeting in Boston, beginning on Tuesday, December 26th. With an enrollment of over ten thousand members who represent a great variety of activities, the Association plays an important part in providing a much needed opportunity for the correlation of different branches of scientific work in America. The meeting is of especial interest to the medical profession, for the Association is the only large body in which medical men are brought into direct contact with scientific workers in other fields. The advantages of such an affiliation are well illustrated by the meeting to be held on the afternoon of Friday, December 29th, at which the Sections on Medical Sciences, Entomology, and Parasitology will unite for the discussion of border-line topics which are of interest to all three groups.

The Medical Sciences will be represented by Dr. R. P. Strong, of Harvard University, and Dr. A. B. Macallum, of McGill University, Montreal; Entomology will be represented by Dr. C. T. Brues, of the Bussey Institute, Harvard University, and Dr. L. O. Howard, of the United States Bureau of Entomology; Parasitology

will be represented by Dr. C. W. Stiles, of the United States Public Health Service, and Dr. C. A. Kofoid, of the University of California.

It is unusual that so distinguished a group of speakers is found on a single program, and physicians who are interested in the broader aspects of medicine will welcome the chance to hear authoritative statements from leaders in allied branches of science.

PASTEUR.

In the year 1815 Jean Joseph Pasteur, a soldier in the army of Napoleon, a knight of The Legion of Honor, and a farmer by trade, settled in the village of Dôle. On Friday, December 27, 1822, his son Louis was born, a child destined to plough unbroken fields of science and to extend the frontiers of exact knowledge to a degree seldom reached by man.

Louis Pasteur stands alone among the ranks of Humanity's benefactors; the position he attained, even during his lifetime, will be forever secure against the petty storm of hatred, envy, and ignorance that forever seeks to tear down the constructive work of those who are immeasurably greater than their opponents. Of Pasteur's battle in the Academy of Medicine, where the chemist who had solved the mysteries of Farb had continually to defend his ground against the enmity of a profession of which he was not a member—a profession that saw its traditional dogma and doctrine slipping away from it under the searching investigation of this man, many know. That he should have lived to see his great achievement acknowledged and recognized by the country he loved so well to serve, was a reward that falls to the lot of few.

Pasteur's childhood was that of an eager, though not a brilliant, student who sought by every means in his power to gain the knowledge that he felt was so necessary to his advancement, although, at that time, a professorship at Artois College seemed a reasonable goal for his ambitions. His course at the Ecole Normale, attendance at the Sorbonne Lectures, and the inspiration afforded by J. B. Dumas, later his master and lifelong friend, turned him into a chemist. At the age of twenty-six he revolutionized physical chemistry by discovering the constitution of racemic acid, and gained the lasting interest of Biot, the chemist, then seventy-four years of age. Biot at one time wrote to Pasteur's father, "It is the greatest pleasure that I can experience in my old age to see young men of talent working industriously and trying to progress in a scientific career by means of steady and persevering labour, and not by wretched intriguing."

Pasteur was in 1853 made a knight of The Legion of Honor. In 1856, as a result of the

troubles being experienced by the French brewers, he took up the study of fermentation. This was extended to wines in 1864. The year 1865 was epochal in Pasteur's career, for it was in this year that Dumas asked him to leave the laboratory and undertake the study of the epidemic that had been playing havoc with the silk worm industry since 1849. In 1869 the disease was conquered and immense revenue saved for France, although, the year before, Pasteur had suffered his first paralytic stroke.

The Prussian invasion soon checked investigation in France. Pasteur, unable on account of his paralysis to accompany his colleagues to the front, wrote bitterly, "I wish that France may fight to her last man, her last fortress. I wish that the war may be prolonged until the winter, when, the elements aiding us, all these vandals may perish of cold and distress. Every one of my future works will bear on its title page the words: 'Hatred to Prussia. Revenge! Revenge!'"

Pasteur in 1873 was elected to the Academy of Medicine by a majority of one vote, distrusted still by our profession although Lister had already in 1867 adopted Pasteur's theory of germs, and created antiseptis. It was not until 1877 that antiseptic methods were employed in Paris, despite Pasteur's unremitting advocacy of his cause.

Charbon, splenic fever, or anthrax, exceedingly common among sheep and cattle in France, gave up its mysteries before the experimental method, and successful prophylactic vaccination was discovered. Soon the first experiments on hydrophobia were begun; attenuation of the vision was found possible, and in 1885 Joseph Meister, the little Alsatian lad, became famous as the first human being to receive the Pasteur treatment.

Honor and recognition from all countries had been piling up upon him. He was fêted, welcomed, revered wherever he went. Medals were struck in his honor. Buildings, streets, villages were given his name. The most humble and the most ignorant looked upon him as their benefactor; his opponents became his disciples. Dr. Fleys, head physician of the Aurillac Hospital, said, in proposing a toast to Pasteur, "What the mechanism of the heavens owes to Newton, chemistry to Lavoisier, geology to Cuvier, general anatomy to Bichat, physiology to Claude Bernard, pathology and hygiene will owe to Pasteur. Unite with me, dear colleagues, and let us drink to the fame of the illustrious Pasteur, the precursor of the medicine of the future, a benefactor to humanity."

On November 14, 1888, the Pasteur Institute, built by public subscription among all classes, even little Joseph Meister contributing his share, was inaugurated. In a speech on this occasion M. Christophle remarked that "it might be said that in this public subscription all the virtues flow into unselfishness like riv-

ers into the sea." A jubilee in honor of Pasteur was held at the Sorbonne on his seventieth birthday, on which occasion he was presented with a medal bearing the inscription: "To Pasteur, on his seventieth birthday. France and Humanity grateful."

His work was about over, although his interest remained ever fresh. Diphtheria was being studied. Eleven years before, Klebs had discovered the bacillus, and now the antitoxin was discovered by Behring. The Pasteur Institute immediately began its manufacture, but the leader was failing. In 1894 he had an almost fatal attack of uremia from which he recovered, but the following year his weakness increased, he suffered from a series of paralytic strokes and on September 28, 1895, he died, having lived to see his work succeed and to know that it was good.

DR. BULKLEY'S RETIREMENT FROM THE NEW YORK SKIN AND CANCER HOSPITAL.

According to the *New York Times* the differences of opinion between Dr. L. Duncan Bulkley and the staff of the New York Skin and Cancer Hospital have led to the retirement of Dr. Bulkley. Dr. Bulkley has been outspoken in his opposition to the generally accepted views concerning cancer and has published in the daily papers articles denouncing the arguments in favor of surgery. One of the phrases used in writing on cancer work contained the following words: "a monument to humbuggery and sordid deception."

The hospital governors have issued the following statement:

"In view of the various communications to the lay press of this city by Dr. L. Duncan Bulkley, a member of the medical staff of the New York Skin and Cancer Hospital, the Board of Governors of the hospital feels constrained to make the following statement:

"The Board of Governors and the medical staff of the hospital are not in accord with the theories or the practice of Dr. Bulkley regarding the treatment of cancer. They believe that such practice as he advocates means the loss of valuable time for the patient and by so much diminishes the hope of relief which other methods, advocated and used by the ablest physicians and surgeons throughout the world, do give.

"It is the practice at the New York Skin and Cancer Hospital to use any and all the treatments which research and experience have demonstrated to be of value in such cases.

"In its own research laboratories it is ever seeking knowledge for the treatment, relief and cure of this most dreaded disease.

"Dr. Bulkley is by many years the oldest physician upon our medical staff, but he is no longer in active service at the hospital. The title 'Senior Physician' which he uses has never been authorized by the Board of Governors or by any by-laws of the hospital.

"For the Board of Governors,

"ELIJAH D. MURPHY, *President.*"

Dr. Bulkley is 77 years old, has published books and articles on cancer setting forth his views. His ideas coincide with those expressed by a very small minority of the profession.

Often added years bring to physicians a generous appreciation of the work of those who have studied the same problems and whose reasoning and experience have led to diverse conclusions but occasionally one sees in the aged, inflexibility of mind and a bitterness of spirit wholly inconsistent with scientific ideals. Physicians above all others should exhibit fairness and even tolerance in the discussion of the problems of disease. Rancor only lends weapons to our opponents. It is not evidence of strength, and in this case rather of senility. We regret this exhibition which compelled the hospital governors to take drastic action.

THE ADVENT OF COUÉ.

The intended visit of Coué to this country will once more flood the press with tales of miraculous cures. Apparently the field of therapeutics is wide and free; anyone can enter the lists against the ills of the flesh, and provided his idea has an element of mystery and is untrammelled by the teachings of pathology, he will be sure of a following.

Certain of these fads are less dangerous than others. It is not unlikely, indeed, that those methods of which Couéism may be taken as a type, are beneficial rather than otherwise. There are many people suffering from imaginary ills, or from slight functional disturbances over which they are unnecessarily concerned. For such people, the tonic effect of a course of mental therapeutics is very advantageous. The very fact that numerous sufferers are joined in a common effort to secure health and happiness gives to such healers as Coué a power, through mass psychology, which transcends to a considerable degree the power which may be wielded along similar lines by any orthodox medical man working alone in his office.

Another group which might properly be brought under such a psychological influence, are those afflicted with incurable disease. Surely no one would grudge them the temporary alleviation of their sufferings by their newly aroused hope and courage.

The harmful effect of such a therapeutic revival appears when people suffering from a true

pathological condition are led by this will-o'-the-wisp to neglect the help offered by legitimate medicine.

MESSAGE OF DR. LINSLEY R. WILLIAMS TO MASSACHUSETTS.

With the opening of the Christmas Seal Sale in Massachusetts, Dr. Linsley R. Williams, president of the National Tuberculosis Association, sends this message to the citizens of the Commonwealth, outlining the situation in Massachusetts as viewed from the conning tower of the great national anti-tuberculosis association. Dr. Williams writes:

"Today Massachusetts is able to point to many fine accomplishments, including a splendid growth in State and local official health agencies. We rejoice with you in these accomplishments, especially in the great reduction in the number of deaths from tuberculosis," and he stated that against 5,291 deaths from this disease in 1911 the number in 1921 was only 3,853, despite the increase in population. While Massachusetts may emphasize its good work accomplished, those interested in public health work should be mindful of the fact that at the present time about 35,000 persons in the State have tuberculosis. The important matters in this connection are, first, that it is necessary to find these persons, and, secondly, a campaign of education must be carried on so that the people themselves may assist in stopping the further spread of this communicable disease. The Health Christmas Seal Sale has for one of its important reasons for being, its high value as an educator of the people.

"For this purpose the Massachusetts Tuberculosis League and its affiliated associations and committees throughout the State are asking for \$200,000 at Christmas time through the sale of Christmas Seals. As has often been said, within certain limits public health is purchasable. This applies to individual and community health. The tuberculosis movement in Massachusetts is fortunate in having behind it a body of volunteer workers who have important plans for 1923. Massachusetts has also within its borders the Framingham Tuberculosis and Public Health Demonstration carried on under the auspices of the National Tuberculosis Association. The Demonstration has aroused international interest in the effectiveness of its methods of finding and treating tuberculosis. Massachusetts, therefore, has the workers; and also has the knowledge based on years of experience of how to wage an effective warfare against tuberculosis. All that is needed is the funds with which to carry on the work during the coming year. I am sure that the people of Massachusetts will not fail to appreciate the importance of financing tuberculosis work adequately through the Christmas Seal Sale."

News Notes.

WORCESTER DISTRICT MEDICAL SOCIETY.—The regular meeting was held December 13th, at 4:15 P. M., in the G. A. R. Hall, Pearl street, Worcester. Program: Unilateral Fused Kidney, Dr. Walter D. Bieberbach, Worcester; Slides illustrating the value of Pyelography, Dr. Philip H. Cook, Worcester; The operability of Protastic Obstruction, Dr. J. Dellinger Barney, Boston. Discussion opened by Dr. O. D. Phelps, Worcester.

NOTE.—The committee appointed at the September meeting of the Society to consider the adoption for automobiles, of the A. M. A. emblem, the Caduceus, to take the place of the green cross so commonly used by many cults, wish to make a report at the next meeting in December. The A. M. A. has offered to supply these emblems in quantities not less than one hundred, with the words, "Worcester District," across the lower border of the rim, for \$1.20 instead of the regular price of \$1.50. The police departments of Worcester and some of the surrounding towns are willing to recognize the emblem and for cars bearing it will make certain allowances in traffic and parking regulations. This will not, however, include repeated and flagrant violations of these regulations by any member of the Society. The A. M. A. will make every effort to limit the sale of these emblems to members of the Society. Will you give your approval or disapproval of the idea by signing and mailing the enclosed card at once?

The Worcester Medical Milk Commission has issued a card setting forth that certified milk is sold in Worcester and gives the names of the producers.

A. W. ATWOOD, Secy.

THE PETERBOROUGH, N. H., HOSPITAL.—A board of eleven Trustees at Peterborough, New Hampshire, is to have turned over to it next spring a twenty-five-bed institution, in the midst of a ninety-acre tract of land, beautifully situated. The hospital will be very complete and very fine, representing gifts of over \$200,000. The trustees are engaged in a study of hospital problems so as to be prepared to provide the best possible service for the people of that section.

WEEK'S DEATH RATE IN BOSTON.—During the week ending December 9, 1922, the number of deaths reported was 223, against 188 last year, with a rate of 15.22. There were 29 deaths under one year of age, against 29 last year. The number of cases of principal reportable diseases were: Diphtheria, 71; Scarlet Fever, 37; Measles, 75; Whooping Cough, 70; Typhoid Fever, 1; Tuberculosis, 25. Included in the above, were the following cases of non-residents: Diphtheria, 14; Scarlet Fever, 9; Measles, 1;

Whooping Cough, 1; Tuberculosis, 5. Total deaths from these diseases were: Diphtheria, 3; Scarlet Fever, 1; Measles, 4; Whooping Cough, 4; Typhoid Fever, 1; Tuberculosis, 8. Included in the above were the following cases of non-residents: Diphtheria, 2; Scarlet Fever, 1; Whooping Cough, 1; Typhoid Fever, 1; Tuberculosis, 1.

RABIES IN MAN.—Last year in eight different states there were twelve deaths registered from rabies in man, as follows: California 1, Kentucky 1, Massachusetts 1, New York 4, Ohio 1, Pennsylvania 1, Rhode Island 2, Texas 1.—*Buffalo Sanitary Bulletin.*

RADIUM FOR PARIS.—The city of Paris has authorized the expenditure of 2,500,000 francs (a little less than \$200,000) for the purchase of radium for the public hospitals of that city.

ENTRANCE REQUIREMENT OF UNIVERSITY OF PENNSYLVANIA MEDICAL SCHOOL.—Beginning in 1923 applicants for admission to this school must have had three years of college work.

HARVARD MEDICAL SOCIETY.—Meeting in the Peter Bent Brigham Hospital Amphitheatre was held Tuesday evening, Dec. 5, 1922. Program: "Clinical Observations with Henderson's Method of De-etherization," Mr. J. C. White, Harvard Medical School; "Some Remarks on the Lungs in Heart Disease," Dr. C. Lundsgaard, Rockefeller Hospital, New York.

THE COMBINED MEETING OF THE MIDDLESEX SOUTH, NORFOLK AND NORFOLK SOUTH DISTRICTS.

This meeting was held at the Tufts College Medical School Nov. 21st, 1922, and was called to order by Dr. Enos H. Bigelow. Dr. John W. Bartol was the first speaker. He spoke of the responsibility of the profession in matters of legislation affecting public health and the practice of medicine and made a strong plea for more definite interest in the problems before the legislature from time to time.

Dr. James S. Stone discussed the necessity for some extension of the power to license hospitals and explained some of the features of hospital functions which may lead to efforts to have these institutions more generally supervised. He also referred to the work of the Industrial Accident Board in its relation to medical service and called attention to the plans for a special meeting at which speakers would discuss all phases of the care of injured workmen.

Mr. Maurice Caro represented Mr. O'Brien, the district attorney of Suffolk County, and gave an interesting discourse on medical matters from the legal standpoint. About 250 members were present. The meeting was an especially interesting occasion. Refreshments were served after the meeting.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION, BABY HYGIENE ASSOCIATION.

The month of November was characterized by a pronounced and general increase in sickness.

Twenty-six thousand eight hundred and forty-six visits were made by the nurses to 7,720 patients, 2,909 of whom were newly admitted.

This is an increase of 24% in new work over that of November, 1921, a phenomenal jump due not to excessive prevalence of any one disease, but to a notable increase in many.

One of the chief features of the month was the increase in the respiratory diseases, new cases of which rose to 50% more than those of November of last year, the figures being 180 new cases of bronchitis; 135 of pneumonia; 93 of other respiratory diseases. There were also 29 new cases of grippé and 79 of tonsillitis.

Measles also showed an increase, 79 new cases, and whooping cough, 67.

Tuberculosis alone among the chronic diseases showed a slight drop, all the others showing some increase.

Prenatal work has continued to increase, 497 pregnant women being admitted, while more deliveries were attended than during November of last year.

The total number of children now under Baby Hygiene care is 9,366. During the month of November 413 new cases were admitted—an increase of 9% over those of November of last year. Forty-four children were readmitted either at their old stations or at stations in other parts of the city. One hundred and fourteen conferences were held during the month, with a total attendance of 5,010—an average of 44. There was an attendance of 265 at the various classes—posture, nutrition, cooking, etc. Ten thousand two hundred and fifty-six visits were made by nurses and dietitians, and 60 demonstrations were given by the dietitians to individual mothers.

Obituary.

HENRY WHITMAN KILBURN, M.D.

Dr. Henry W. Kilburn, Boston ophthalmologist, died suddenly at Los Angeles, California, December 3, 1922, aged sixty-five.

The son of John and Amanda Maria (Whitman) Kilburn, he was born at Lonsdale, R. I., April 15, 1857. He was a descendant of Thomas Kilburn, who came to this country from Wood Ditton, Cambridgeshire, England, in 1645, and settled in Glastonbury, Conn. Dr. Kilburn was graduated from Harvard in 1880 and from Harvard Medical School in 1884, supplementing his medical course by a year's study of ophthalmology in Berlin, Germany. On his return he was house officer at the Massachusetts Charitable Eye and Ear Infirmary until the spring of 1887. He was ophthalmic surgeon at the Lowell Corporation Hospital for two years, then assistant ophthalmic surgeon at the Boston City Hospital, and finally ophthalmologist-in-chief to the Carney Hospital from 1897 to 1907. His reputation was of the highest, being known as one of the best refractionists in the community. He was a member of the American Ophthalmological Society, the New England Ophthalmological Society, of which he was president for a year, the Boston Society of the Medical Sciences, the Massachusetts Medical Society and the American Medical Association. He belonged also to the Harvard Musical Association and the University, Progressive and Episcopalian Clubs. For many years he lived in West Medford. In 1889 he married Miss Harriet Mason Plumer of Boston.

Dr. Kilburn gave up practice in 1916 and had lived much of the time since in Switzerland, returning to Boston every now and then. His death will be mourned by a large circle of friends.

Miscellany.

A RIFT IN THE CLOUDS.

Frederick Müller, Professor of Medicine in Munich, has been called by many the greatest teacher of medicine in the world. He has done much laboratory work during his career; in fact, his first years were spent in the laboratory of Voit, an older German scientist. Just now, when the Germans (and many Americans) are being criticised widely for lack of humanitarianism in the practice of medicine, the following inspired letter from Munich, signed by Dr. Müller, is distinctly timely:

Dear Dr. Lusk:

You write in a recent letter that Benedict [S. R.] holds it to be an anomaly that I, as a clinician, should concern myself with these physiologic problems. The responsibility for this belongs not alone to my training in Voit's laboratory but also and especially to the circumstance that, as physician at the sick bed, my attention is constantly called to the significance of problems of metabolism, and because

the physiology of metabolism has been stimulated to a remarkable extent through a study of the pathology of metabolism at the bedside of the sick man.

You should read the new book of Petren on diabetes. It suggests a number of new problems. On the other hand, I do not believe that the new English experiments on the subject of carbonic acid and oxygen tension in arterial and venous blood will inform us further. We are investigating the blood of the arteries and veins of the arm. The metabolism of the arm and of the hand is of very little importance in comparison with that of the liver and the kidney or even of the heart. Oh, if we could only compare the blood of the aorta with that of the inferior cava and the hepatic vein! The new experiments of Starling are of much greater clinical importance and are fit to establish upon a new foundation our views concerning circulatory disturbances and heart disease.

The clinical teachers are forced to follow the progress made by the pure sciences—chemistry, physics and physiology—because they throw some light upon the processes of disease in man. But we do not approach the sick bed as physiologists, but rather first of all with love toward the sick man and with an intense desire to help him. I believe that this human fundamental element must be inborn or one will never be the right kind of a physician. The clinical teacher must be primarily a good and experienced physician, and not one whose entire interest and experience are of the laboratory. He who does not heartily interest himself in his patient will never be a good clinician. This human, or, if you will, humanitarian, side of our profession is not only the most beautiful but also the most interesting part of it. It assumes an interest not only for the body but also for the mental individuality of the patient, and I can assure you that my afternoon consultation hours, in which I see patients from all the countries of the world, are to me at least as interesting as the work in my laboratory.

Personal contact with the patients during my consultation hours widens my mental horizon not only from a medical but also from an intellectual point of view, for difficult medical cases and interesting personalities from all classes of society come to me during these hours. I therefore find myself out of sympathy with the new American system of "full-time clinicians," which limits the activity of the clinician to a ward in the hospital and forbids private practice among those who do not wish to go to a hospital. I feel that the forbidding of private practice is not in accord with Holy Writ, as expressed in 1 Timothy, chap. 5, vs. 18².

FRIEDRICH MÜLLER.

Munich, Aug. 10, 1922.

LOW INCIDENCE OF VENEREAL DISEASE IN OUR COLLEGES.

The Buffalo Sanitary Bulletin comments on the results obtained from a recent questionnaire sent by the United States Bureau of Education and the United States Public Health Service to almost one hundred college presidents and executives, asking for their opinions with respect to the prevailing attitudes and practices of college men in the matter of sex.

Sixty-five replies were received, varying greatly in their comments, but the unanimous opinion was that venereal disease in the colleges is of an extremely low incidence; probably much lower than a generation ago.

"The forces responsible for this change, loosely classified, are, first, education, both popular and academic, in matters of health, with an increasing emphasis on the hygiene of sex and venereal diseases; *second*, a more active concern on the part of the college in the physical well-being of its students, including increased opportunities for physical training and play activity; *third*, improvement in environment factors, such as the elimination of the saloon and the suppression of prostitution, and, *fourth*, the influence of co-education upon the 'atmosphere' of the college."

TRYING TO LIFT THE BAN ON MALT LIQUORS.

Edward & John Burke, Limited, of Dublin, bottlers and distributors of Guinness Stout, have filed a complaint in the United States District Court for the Southern District of New York, asking for an injunction to prevent prohibition officers from interfering with the sale of Guinness Stout for medicinal purposes. This complaint is directed against the Willis Campbell Act, in so far as it prohibits the prescribing of stout for medicinal purposes.

In 1904, according to this complaint, answers to questionnaires were received from 435 reputable physicians, "of whom 96 did not prescribe stout as a medicine, and 339, or 78 per cent., stated that in their judgment stout possessed valuable medicinal qualities, and that they habitually prescribed it for their patients, designating the cases in which they felt it was a proper and useful medicine."

We must ourselves confess that we cannot see why stout with an alcoholic content of from 7-8% should be discriminated against in favor of the more potent liquors.

THE INFECTIOUSNESS OF MEASLES.

Dr. F. A. Sharpe, in commenting upon the recent epidemic of measles at Preston, refers to

the extreme infectiousness of this disease. He points out that, when an epidemic breaks out in a district, practically every child in that district, unless naturally immune, falls a victim to that disease.

During the past 50 years measles has been responsible for 1,413 deaths in Preston; 835 have died from whooping cough, 750 from diphtheria, 678 from scarlet fever, 38 from small-pox, while 3,358 have succumbed to epidemic diarrhœa.

Dr. Sharpe emphasizes the need for protecting infants from the infection of measles, since the mortality from this disease is much higher among infants than among older children.—*The Medical Press and Circular*.

COOK PORK WELL TO AVOID TRICHINOSIS.

"Cook pork well" is the advice of the United States Department of Agriculture. Failure to observe this important precaution is liable to be followed by serious illness known as trichinosis. Hogs harboring the parasites show no symptoms and pork containing trichinae is exactly the same in appearance as other pork. No practicable system of meat inspection has been discovered by which persons who eat uncooked or imperfectly cooked pork can be protected from the danger of trichinosis. Cooking destroys the parasites.

The winter season, particularly during the holidays, is when outbreaks of trichinosis are especially likely to occur. At this time of year, smoked and dried sausage and various other products made from pork and eaten without cooking are commonly consumed in considerable quantities in many households, in which the eating of uncooked pork is customary. Entire families may be stricken and as many as a hundred cases of trichinosis have resulted from the meat of a single hog served as uncooked sausage or similar product at some gathering or reunion of people, only those escaping who did not eat any of the uncooked pork. The comparative rarity of the disease may present diagnostic difficulties.

The prevention is obvious and consists in thorough cooking.

Correspondence.

DARWINISM AND EVOLUTION.

THEIR RELATION TO THE PHYSICIAN.

East Boston, Mass., Dec. 2, 1922.

Mr. Editor:

THE BOSTON MEDICAL AND SURGICAL JOURNAL of November 30th, 1922, contained a few paragraphs under the heading of "Darwinism versus Christianity Again." It referred to a recent conference held by

various Protestant clergymen in St. Paul, Minnesota, where it was decided to oppose the teaching of Evolution in the public schools of that state. At this meeting Evolution was spoken of as "antiscientific and antiscientific theory of the origin of man and the universe."

The JOURNAL then remarks that "although there may be difference of opinion relating to the theories of Evolution it is open to question whether the decision relating to the interpretation of scientific data should be left with the clergy, for there is not sufficient evidence at the present time indicative of an adequate amount of study on the part of the clergy that would warrant leaving the interpretation of the evidence to this body of men. Furthermore, many scientific minds have not found in the theory of Evolution any conflict with religious teaching."

Now it is most important that every physician should have a clear idea of what "Darwinism" and "Evolution" mean. We need not enter into a discussion of Darwin's attitude towards Christianity or the worship of any supernatural being with the hope of future rewards or fear of future punishment. That is beyond the scope of this JOURNAL and does not concern this article.

But Evolution and Darwinism concern not only all physicians but every man and woman who would have an intelligent conception of the origin of our universe. It is surprising to find the large number of medical men who have absolutely no idea of what Evolution means or of the great work accomplished by that great quartette of scientists, Darwin, Huxley, Spencer and Haeckel. Evolution is continually being spoken of by such men as "that monkey theory."

It is the object of this article to briefly outline what we mean by Darwinism and Evolution, with the hope that medical men may extend their knowledge to their further advantage on the subject. A Kentucky legislature, when asked to make a state law, excluding all teaching of Evolution from the public schools, rejected that measure by but one vote. Massachusetts may yet be called upon to decide the question and it behooves the medical fraternity to have at least a fundamental knowledge of the subject.

First, let us ask, how are we going to find out the truth, in so far as it is obtainable, in regard to any and all subjects? What are the methods which we shall adopt? Professor Huxley has left us a formula which is applicable to all propositions. Condensed, it is as follows: "Observe and gather all facts. Experiment with them, classify and compare them, eliminate useless facts, deduct conclusions and then try to verify all conclusions."

Now what do we mean by Evolution? Again, briefly, we mean that all living plants and animals had a common ancestor and originated from one or more simple forms. It means that a unifying principle underlies all phenomena, whether of earth or air, sea or star or human mind. It means organized knowledge for the purpose of utility and for the further acquirement of knowledge.

The idea of Evolution has been in the minds of men for centuries, sages of past time were mindful of it, Greek philosophers guessed at it and the early church of the Christians defended it.

The following incident should be remembered. It is a good one on the theologians. In the year 384, (Christianity now being a state religion and growing in power) the old pagans sent their most distinguished orator, Symmachus, to Milan, to plead with the Christians that they be allowed to retain their old deities.

Behind the throne of the boy Emperor Valentinian, stood Saint Ambrose, the greatest Christian leader since Saint Paul. And the famous argument by which Ambrose silenced the pagans was in effect the Evolutionary argument. It was an appeal against conservatism to the constant changefulness and progress of nature.

Ambrose looked round the world for what we should call, in modern language, the laws of nature, and he found the supreme law was change. "Was religion alone," he asked, "to be an exception to the law?" "Were they to cling to old rites and legends when the voice of nature on every side spoke of change, advance, the death of the old, the birth of the new?"

Saint Ambrose won, but the church, ever since has forgotten his argument. It has proven too much.

The rhetorical argument of Ambrose has now become a science and the most conspicuous, the most comprehensive, the most illuminating law of nature is Evolution. From the atom of matter to the star, from the little alga swimming in the pond to the orchid, from the worm to the human being, from Niagara to the Alps, from the primitive Bushmen to the civilization of the United States—all was evolved. Religion is no exception.

Men may dispute as to whether things were evolved gradually or by spurts, whether the correct way to conceive the Evolution is Lamarckism, or Weismannism, or Mendelism or Darwinism, but the fact and universality of Evolution remains. All subjects fall under the law and it has revolutionized or profoundly modified every department of human thought and every motive to human action.

The idea of the origin of species by the modification of pre-existent organisms had been in the minds of men long before Darwin.

Linnaeus, Buffon, St. Hilaire, Lamarck, Goethe, Lyell, and Erasmus Darwin had all seen it, but Charles Darwin recognized its universal application where others had seen only the particular.

"Darwinism" refers chiefly to his development of what he calls "Natural Selection," the phrase which has caused so much controversy. He states it as follows, ("Origin of Species" page 74). "This preservation of individual differences and the destruction of those which are injurious, I have called NATURAL SELECTION or the survival of the fittest." It accounted for the development of new species. It did not explain all, the wonder is that it explained so much. Darwin did not expect that it would explain everything, but it has explained so much and been so valuable, that it can never be discarded. The phrase "survival of the fittest" was coined by Herbert Spencer, and meant that those organisms which could best adapt themselves to their environment would live. And "natural selection" meant that the organism retained all useful habits and structures that helped it to survive and discarded all that would prevent it from living.

Professor Huxley in England and Ernst Haeckel in Germany, took up and applied the theory of Evolution to their respective departments—and what happened? Men of science in all lines were obliged to reconstruct old ideas and adapt them to the Evolution.

Darwinism and Evolution were thus the great moving causes in a great scientific revolution and in the vast onward movement of the human intellect. By these means, science, which had been in a more or less chaotic maze up to 1860, was placed in an orderly system with a definite plan and recognizable meaning. And Charles Darwin produced a greater change in current thought than any other man. He accomplished this by observing nature with a strength of purpose, tenacity, honesty, and ingenuity, never surpassed.

No question can now be considered fairly or completely without looking into its evolutionary aspect. It has opened up a large field for investigation and has placed science on a firm footing; in fact, all modern advancement owes its debt to the idea of Evolution. And without it the science of medicine would still be in the stage of the dark ages.

It is high time that medical men asserted themselves, for they have been asleep too long, especially in matters of education. *The interpretation of the*

facts of Evolution should be with men trained in the natural sciences, not with theologians. The minds of dead men of an obscure past should not rule the present or the future unless their teachings have been verified by repeated experiment.

An education in the essentials of science is the one thing most needed by this or any other country. *Verified facts, based on sufficient and best evidence should be sought after.* The doubter, the sceptic, the questioner, all are needed for the advancement of the human race.

No one knows for certain how this universe of ours originated. We have two explanations, one given by theologians and the other by science.

The one given by the former depends upon the guess of primitive and savage man of a low type of mentality to explain the phenomena of nature; the other, Evolution, given by men of science, with trained minds, who have carefully weighed and tested all available evidence to the end that nothing but the truth shall prevail. One leads to mental slavery and retrogression, the other to progress. I believe Saint Ambrose was right.

J. DANFORTH TAYLOR, M.D.

COMITÉ D'AIDE DE L'UNION DES AVEUGLES DE GUERRE.

25, RUE BALLU, PARIS, (IXE)

Authorized by Governmental decree, April 9, 1921.

Mr. Editor:

I am enclosing a letter from my very good friend Theodore C. Merrill, an American physician now permanently engaged in research work in Paris. I can vouch cordially for Dr. Merrill's good judgment and enthusiasm and also for his earnest work in promoting the Entente Cordiale between American and French physicians. I know that this union for the French war victims who have lost their sight is doing splendid work with terribly limited resources. If there are kind hearted physicians whose eyes may fall upon this letter in the JOURNAL, it is possible they may be induced to contribute to so worthy a cause. On account of my personal knowledge of the great need of this work I shall be especially appreciative if you can give the matter space in the JOURNAL.

Very sincerely yours,

KENDALL EMERSON.

21 High St., Worcester, Mass.

Paris, November 15, 1922.

Dear Colonel Emerson:

I want to ask you kindly to aid and further efforts which I am making in behalf of the Oeuvre indicated in the heading. The Union des Aveugles de Guerre maintains a foyer, or home centre, for the war blinded, where the ex-soldiers may find recreation, a Braille library, aid in securing raw material and employment, and in disposing of their finished articles. Temporary lodging and care are also provided for necessitous cases, and a rest home for the families of the indigent blind is planned. The immediately urgent problem is to keep the centre running.

Coöperating with Doctor de Lapersonne, I am making an appeal to American ophthalmologists and oculists. Doctors de Schweinitz, Wilmer and McKeynolds have cordially accorded me their hearty support and I trust that a notice will soon appear in the *Journal of Ophthalmology and Journal of the A. M. A.* Doctor William W. Keen has also kindly helped me. If you can kindly bring this matter to the attention of local ophthalmologists, oculists or any others who may be interested, your kindness will be most deeply appreciated by the Union and its blind. You may

note from the heading that I am serving as Delegate for America. I have arranged with the Guarantee Trust Company to receive all funds which I may handle. New York drafts, or certified checks, made in dollars and payable to me, will constitute the best form for transmitting contributions. On the part of the French, efforts will be continued all the time. You are quite familiar with the many needs pressing in France, and that may be left in your experienced hands. Speak a good word for the Union whenever you can, dear sir, and find some people who are able and willing to aid this group of the war blinded, who have unquestionably given highly in the cause of the world's freedom and justice.

Please accept my very best wishes for a happy Christmas and the cordiallest of regards from the banks of the Seine.

Most truly yours,

THEODORE C. MERRILL,

Delegate for America of the
Union des Avengles de Guerre.

10 bis rue Herran, Paris, XVIe.

NEXT MEETING OF THE AMERICAN SURGICAL ASSOCIATION.

Mr. Editor:

I note in THE BOSTON MEDICAL AND SURGICAL JOURNAL of November 30, a statement that the next meeting of the American Surgical Association will be held in Rochester, Minn., in January, 1923.

I am not sure of the source of this report, but it is incorrect, as the date of the meeting has been decided only recently, and the meeting will be held in Rochester, Minn., May 31 and June 1 and 2, 1923.

Sincerely yours,

R. B. GREENOUGH, *Secretary.*

HUMAN ACTINOMYCOSIS.

December 6, 1922.

Mr. Editor:

I am endeavoring to make a complete study of the distribution of human actinomycosis in this country. The number of cases reported in the literature is surprisingly small, and I know that the disease is not so rare as is sometimes thought. I shall greatly appreciate hearing directly from any one who has had experience with this disease, and desire to know concerning case histories the following: age, sex, occupation, residence, state in which the disease was contracted, location of lesion, duration of symptoms, and any special points of interest connected with the treatment, outcome of the disease, or necropsy findings.

A. H. SANFORD, M.D.

Mayo Clinic, Rochester, Minnesota.

THE TREATMENT OF PNEUMONIA.

December 10, 1922.

Mr. Editor:

I venture to send enclosed clipping in view of your editorial on Pneumonia in your issue of Dec. 7, 1922. I trust you may find it worth reading and reprinting in part. In looking back, I have lost very few cases in private practice, where I was attending physician and patients followed my advice from the beginning.

Yours sincerely,

BEVERLEY ROBINSON.

NOTE:

The clipping* is an editorial analysis of three papers published by Dr. Robinson.

The points made are as follows: Since the pneumococcus is found in the secretions of the mouth and throat of many healthy persons one special indication

is for the use of antiseptic gargles with an acid reaction. Second, on the development of chill, fever, pain in the side, cough and expectoration beechwood creosote should be vaporized in the patient's room; third, prevention of contagion; fourth, adequate ventilation; fifth, two nurses; sixth, proper food (mainly milk) with abundance of water; seventh, avoidance of extremes in treatment, especially mentioning digitalis and strychnine.

He believes in the use of quinine, and antimony when the congestion and prexia are prominent features. Alcohol should be used judiciously except in cases of plethora and hepatic engorgement and its effect is good in association with coffee. He also believes in nitroglycerine in cases with marked pulmonary congestion and oedema.

In a later communication especial endorsement is given to the sublingual use of strophanthin.

In a few words he endorses the use of most of the drugs that have been used when definitely indicated except aconite and digitalis.

IN MEMORIAM

LOUIS PASTEUR.

1822—1922.

The milestones of a century of strife

Have passed from sight along this road of time

Since France first offered to mankind a life

That service to mankind has made sublime.

In spite of stiff-backed dogma, worn and old,

In spite of jealousy and hatred blind,

You made the mysteries of earth unfold

Before the patient searchings of your mind.

Made clearer by the light your genius shed,

The light-deflecting crystals you have shown

To have a meaning until then unread,

And Chemistry has claimed you for her own.

The wines that all of France have prized so much,

Regained their sweetness when your goal was won;

The silkworm recognized your magic touch

And at your bidding threads of gold were spun.

As ripples widen in a placid pond,

Your tasks, diversified, still met success.

Disease retreated when you waved your wand,

And grateful nations learned your name to bless.

Pasteur, we hail you in that far beyond

That wisely, still, is veiled from mortal glance.

May gratitude intensify the bond

That grows between America and France!

JOG.

DISEASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING DECEMBER 2, 1922.

Disease.	No. of Cases.	Disease.	No. of Cases.
Anterior poliomyelitis	5	Ophthalmia neonata	18
Chicken-pox	136	Pneumonia, lobar ..	111
Diphtheria	244	Scarlet fever	227
Dog-bite requiring anti-rabic treatment	3	Smallpox	1
Encephalitis lethargica	3	Syphilis	31
Epidemic cerebrospinal meningitis ...	4	Suppurative conjunctivitis	6
German measles ...	4	Trachoma	6
Gonorrhea	120	Tuberculosis, pulmonary	99
Influenza	7	Tuberculosis, other forms	13
Measles	309	Typhoid	16
Mumps	127	Whooping cough ...	205
		Hookworm	4

*Medical Record, February 25, 1905.

DIABETES AND ITS SURGICAL COMPLICATIONS.

A meeting of unusual interest both to physicians and surgeons is that to be held in the Boston Medical Library on Wednesday, December 27. Our knowledge of diabetes has increased tremendously of late years. The prospect of arresting the disease and of prolonging life had been very bright even before the discoveries of the last few months regarding insulin.

One of the causes of death in diabetes has been the surgical complications. The progress in medical treatment has made possible corresponding progress in the surgical treatment of diabetic lesions.

Improved methods of anesthesia have greatly lessened operative mortality. The ability to get patients sugar free, even for limited periods of time, has rendered possible the healing of operative wounds which otherwise might never have healed. Much more conservative surgery has been made possible.

At this meeting arranged by the Surgical Section of the Suffolk District Society, the chief speaker will be Dr. E. P. Joslin, one of the leading authorities upon diabetes. Following his presentation of the subject representative surgeons from the leading Boston hospitals will summarize their experience in the operative treatment of diabetic lesions.

This meeting, to which all physicians are invited, will teach us what is possible under the improved methods which have already been established. We may get an inkling of what can reasonably be expected from the startling developments of the last few months.

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Hyannis, —February 2, 1923. (Annual Meeting)—May 4, 1923.

Bristol South District:—Fall River, —May 3, 1923.

Essex North District:—Haverhill, (Semi-Annual Meeting)—January 3, 1923. Y. M. C. A. Building, Lawrence. (Annual Meeting)—May 2, 1923.

Meetings of the Suffolk District and the Boston Medical Library, at the Library:

December 27, 1922:—Surgical Meeting. "Surgical Lesions Occurring in Diabetes: Their Peculiarities and Management," Dr. Elliott P. Joslin, Boston. An account of the experience in this field of the major hospitals of Boston, by members of the staffs.

January 31, 1923 —Medical Meeting. "Epidemic Encephalitis," Dr. E. W. Taylor, Boston.

February 28, 1923:—Medical Meeting. "Colitis," Dr. Henry F. Hewes, Boston.

March 28, 1923:—Surgical Meeting. "A Review of What Surgery Can Accomplish in Diseases of the Thoracic Organs, with a Forecast of the Future," Dr. Howard Lillenthal of New York.

April 25, 1923:—Annual Meeting. Election of Officers. "The Record of the Past Twelve Years in Syphilology, with a Forecast of the Future." A series of 10-minute papers. Dr. C. Morton Smith, Boston, will preside.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexia Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke Hist. The date for each speaker has not been assigned.

Middlesex North District:—Meeting, Wednesday, January 31, 1923.

Middlesex East District:—Jan. 24, 1923. The Nursing Problem. Speaker to be announced later.

March 21, 1923. Mental Factors in Childhood. Paper by Dr. William Healy.

April 18, 1923. Interpretation of Laboratory Findings. Papers by Dr. E. O. Crabtree and one to be announced later.

May 9, 1923. Annual Meeting.

All meetings except the annual meeting will be held at the Harvard Club in Boston. A. E. Small, Secretary.

Worcester District Meetings are scheduled as follows:

January 10, 1923:—The meeting will be held at the Worcester State Hospital, Belmont Street, at 4.15 P.M. Programme: "A Discussion of Status Thymico-Lymphaticus and the Inherent Compensatory Possibilities," Dr. Walter Timme, New York City. Discussion will be opened by Dr. W. A. Bryan.

February 14, 1923:—The meeting will be held at the Worcester City Hospital at 4.15 P.M. The programme will consist of a series of papers by members of the staff.

March 14, 1923:—The meeting will be held at St. Vincent's Hospital at 8.15 P.M. The programme will consist of a series of papers by members of the staff.

April 11, 1923:—The meeting will be held at Memorial Hospital at 8.15 P.M., and the programme will consist of a series of papers by members of the staff.

May 9, 1923:—Annual meeting and banquet.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

December 26-30, 1922:—Americo Association for Advancement of Science meets in Boston.

January, 1923:—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston; W. H. Allen, Mansfield, Mass., Secretary.

January, 1923:—Boston Association of Cardiac Clinics. Meeting January 15, 1923, at 8.15 P.M. Boston Lying-In Hospital (New Hospital). Subject: Pregnancy and Heart Disease.

January, 1923:—Boston Medical History Club will meet January 15, 1923.

February, 1923:—New England Dermatological Society Meeting, February 14, 1923, at 3.30 P.M., in the Skin Out-Patient Department, Massachusetts General Hospital; C. Guy Lane, Secretary.

February, 1923:—Boston Medical History Club will meet the third Monday of this month.

March, 1923:—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary.

March, 1923:—Boston Association of Cardiac Clinics. Meeting March 15, 1923, at 8.15 P.M. Boston City Hospital. Subject: Prevention and Relief of Heart Failure.

March, 1923:—Boston Medical History Club will meet the third Monday of this month.

April, 1923:—New England Dermatological Society Meeting, April 11, 1923, at 3.30 P.M., in the Surgical Amphitheatre, Boston City Hospital; C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston; W. H. Allen, Mansfield, Mass., Secretary.

April, 1923:—Boston Medical History Club will meet the third Monday of this month.

May, 1923:—Massachusetts Society of Examining Physicians (date and place undecided). American Pediatric Society Meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind.; H. C. Carpenter, Secretary.

May, 1923:—Boston Association of Cardiac Clinics. Meeting May 17, 1923, at 8.15 P.M. Children's Hospital. Subject: Rheumatism and Chorea and Heart Disease.

June, 1923:—American Medical Association, San Francisco, June 25-29, 1923; Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923:—Massachusetts Association of Boards of Health, July 26, Nantasket; W. H. Allen, Mansfield, Mass., Secretary.

*Deceased September 2, 1922.

DR. W. T. GRENFELL, superintendent of the Labrador Medical Mission of the Royal National Mission to Deep Sea Fishermen, was recently admitted to the Fellowship of the Royal College of Surgeons, England.—*The London Press and Circular*.

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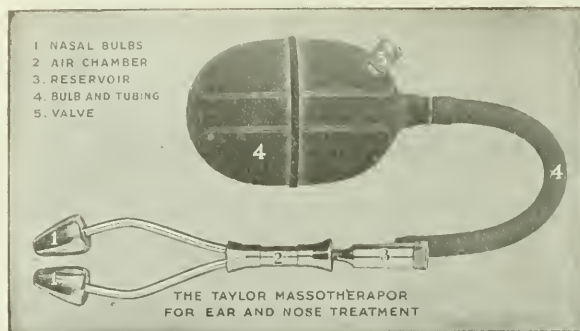
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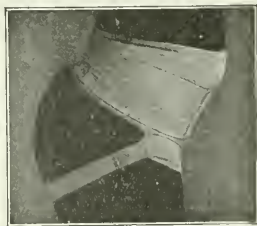
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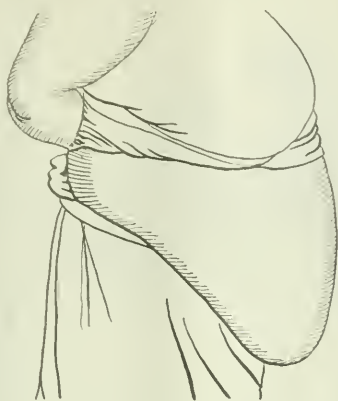
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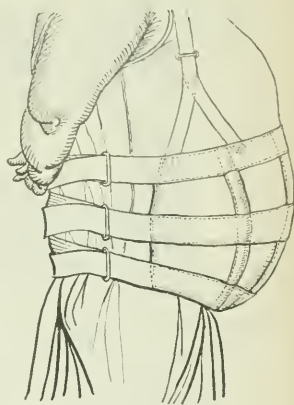
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Address.

AN ADDRESS AT THE CELEBRATION OF THE FIFTIETH ANNIVERSARY OF THE ESTABLISHMENT OF THE TRAINING SCHOOL FOR NURSES AT THE NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN, OCTOBER 31, 1922.

BY ALFRED WORCESTER, A.M., M.D., WALTHAM, MASS.

THIS is a notable occasion. Fiftieth anniversaries, whether of persons or of institutions, are always interesting. But today we celebrate no ordinary event.

Among the many beneficent services rendered by the New England Hospital for Women and Children, the most noteworthy is the establishment here of the first American training school for nurses, in September, 1872. Other hospitals preceded this in the "treatment of the diseases of women and children and in giving clinical instruction to female students of medicine," as two of the three purposes of this Hospital are stated in its Act of Incorporation.* But in the third purpose, as stated in this same Act, that "of training nurses," this Hospital has absolute priority.

For, although nine years intervened between the acceptance of the Act of Incorporation and the establishment of their training school, this

purpose was kept steadily in view by the noble company of women who founded this Hospital and guided its early development. And as soon as a building was secured, suitable for the enterprise, this training school was begun.

In the Annual Report for the year ending September 30, 1872, the secretary, Mrs. Ednah D. Cheney, says regarding the Education of Nurses: "In order more fully to carry out our purpose of fitting women thoroughly for the profession of nursing, we have made the following arrangements:

"Young women of suitable acquirements and character will be admitted to the Hospital as school nurses for one year. This year will be divided into four periods; three months will be given respectively to the practical study of nursing, in the medical, surgical and maternity wards, and night nursing. Here the pupil will aid the head nurse in all the care and work of the wards under the direction of the attending and resident physicians and medical students. A course of lectures will be given to nurses at the hospital by the physicians connected with the institution, beginning on January 21, 1873.Certificates will be given to such nurses as have satisfactorily passed a year in practical training in this hospital."

And in the same report, Dr. Lucy E. Sewall says:

"Our plan is to take them in for one year, training them thoroughly, theoretically and practically; teaching them medical, surgical and

*Approved March 12, 1863.

confinement nursing. At the end of the year, if we are satisfied with their behavior and their knowledge, we shall give them certificates signed by the hospital doctors."

This announcement of a real training school for nurses is the first of thousands of similar announcements since made in this country, and such leadership in one of the great advances of the last half century is a high honor for this hospital.

But the claim of priority for this school does not rest solely upon this early announcement of intentions, nor yet upon the purpose of training nurses, as stated in the Act of Incorporation nine years earlier. A still more solid foundation for the claim is to be found in the same report, for the year ending September 30, 1872, in this statement:

"At present we have five nurses in training."

No other American hospital fifty years ago could have published any such statement. And yet, in spite of the undisputed fact that the diploma given to one of these five pupil nurses, Linda Richards, is the earliest dated American diploma, the priority that rightly belongs here has been claimed for the Bellevue training school. It will be interesting, by the way, to see what date they will select for their golden jubilee.

That the great New York institution should ignore this brave little pioneer school in Roxbury is not unnatural. Such treatment of the small by large institutions is not unprecedented. But what excuse is there for a former superintendent of this earliest school in America, who publicly controverts its priority and argues in favor of Bellevue's spurious claim?

If this fiftieth anniversary celebration does nothing more than to establish the rightful claim of this school to American priority, it will not have been held in vain. And before another half century shall elapse this cradle of trained nursing in this country ought to be, and doubtless will be, visited as a shrine; just as pilgrimages now are made to the tiny summer house in the garden of Kaiserswerth where Fliedner's training school began less than two score years before.

When we think of what nursing was before its renovation, and when we remember what the world owes to Theodor Fliedner and to Florence Nightingale, it is easy to see why every slightest claim to American priority in the movement should be magnified.

Not only have hospitals been redeemed from the pest holes that they were, but in private homes, as well, countless lives have been saved, untold suffering has been assuaged, and in thousands upon thousands of instances the other members of the family have been relieved of the heavy and anxious burden that otherwise would have laid them low.

Next to the discovery of anaesthetics, and then to the discovery of the principles of aseptic

sis, the advance of medical science, during the last three or four score years, is due most largely to the introduction of trained nursing. And in the latest beneficent advance, in the prevention of diseases and in safeguarding the public health, it is not too much to say that the assistance of trained nurses is absolutely indispensable.

In the history of trained nursing much of the confusion, as well as the conflict regarding priority, is due to the difficulty of distinguishing modern nursing from what preceded it. For instance, in years gone by when Dr. Susan Dimock was credited, as she should be, with the honor of starting this school, Dr. Zakrzewska used to ask why the nurses she herself had trained in preceding years should be so left out of account. And, indeed, in her case, that was not an easy question to answer. For she herself was an excellent nurse and an excellent teacher of nurses. To begin with, before she acquired her medical education, she was an expert midwife and teacher of midwives. And a highly trained midwife is both an obstetrician and an obstetric nurse.

It is therefore no wonder that many of Dr. Zakrzewska's nurses, whom she trained in the earlier years of this Hospital, were afterwards in great demand and held in high public favor. But, even so, it was difficult in those early years to find enough women willing to work here in these wards the six months that were then required before certificates were given them.

The fact is that the training, as then given, was not what ambitious and intelligent women wanted. It was all practical enough, no doubt. They were taught what to do and how to do it, but they were not taught *why*. This is the fundamental difference between a trade and a profession—between old-time and modern nursing—between Dr. Zakrzewska's apprentices and Dr. Dimock's pupil nurses.

In the history of other hospitals, where the change was more marked, there is no such difficulty as here in distinguishing between the old and new kinds of nurses. In the Bellevue Hospital, for instance, at least part of their supply of nurses used to come from the notorious Five Points criminal court, where prostitutes were given the option of a jail sentence or a term of service as nurses. Their conduct in these wards easily can be imagined, even without Dr. Austin Flint's testimony that in his interne days it was no uncommon occurrence of a winter morning to find a nurse lying drunk under the bed of her dead patient whose stimulants she had stolen.

No wonder is it that Bellevue gratefully remembers Dr. Gill Wylie's report of the new order of English nurses and his letter from Miss Nightingale, giving advice and instructions, and the rescue effected by the State Charities' Aid Association, and the advent of Sister Helen. But these events, which led to the establishment

of the Bellevue Hospital training school, in the spring of 1873, do not give it the priority that has been wrongfully claimed for it.

It is my good fortune distinctly to remember Dr. Dimock's arguments in favor of the new school she was about to open. In trying to persuade my mother to allow one of my older sisters to enter this school, she insisted that the vocation of nursing was entirely suitable for *young women, for well educated women, and for those having all home advantages.* Nursing, she claimed, was no longer to be a trade of last resort for middle-aged spinsters and impecunious widows.

Fifty years ago that was heresy. We can now see that it was true prophecy. But where did Dr. Dimock get these ideas?

As a medical student here, five years before, she, of course, knew the difficulties of the nursing situation in the hospital, and also the insistent public demand for a larger supply of first-class nurses. That she was intent upon the problem is proved by her visits to Kaiserswerth and to Florence Nightingale. She was seeking the light and she found it.

Twenty-five years afterwards, I found that Susan Dimock's enthusiastic plans and hopes were well remembered by Miss Nightingale. Dr. Dimock, indeed, was not the kind of person easily forgotten! And I doubt not that Miss Richards will tell us that her own cordial reception by Miss Nightingale was due at least in part to the fact that she was Dr. Dimock's former pupil, as well as the first American graduate nurse.

It is no mere coincidence in the Report of this Hospital for 1872, from which I have already quoted, that Dr. Lucy E. Sewall, one of the attending physicians, describes as "one of the pleasantest events of the year the return from Europe of Dr. Dimock to take charge of the Hospital." And very naturally, in the following paragraph, Dr. Sewall goes on to say that "we have now determined to use our increased facilities to the utmost and each year to send out a small band of trained nurses."

One of the very small sized objections that has been made against the claim of priority for this training school is the fact that in its first years it was under the immediate superintendence of a physician, and not of a trained nurse. This tries one's patience, especially if it comes from the Bellevue Hospital, where Linda Richards, after her training here, was immediately employed as head night nurse and then as chief nurse of the maternity department. No such objection was then made there, nor afterwards at the Massachusetts General and at the Boston City Hospitals, nor yet at the dozen other hospitals where Miss Richards subsequently was called to establish their training schools.

Trifling as this objection is, it nevertheless

gives occasion to discuss the tendency of the so-called leaders of the nursing profession toward absolute independence of the nursing from the medical profession.

This is dangerous doctrine. But, happily, no such nonsense has been current in this hospital. For here it could hardly be denied that women physicians, especially the many who previously have had regular nursing training, are not excellent nurses.

The fact is that many physicians always have been first-rate nurses, and still more of them are perfectly able to decide between the excellent nursing service sometimes obtainable for their patients and the wretchedly incompetent service they too often have to put up with. The converse is also true, that nurses are often able to distinguish between good and poor doctors. So it is in the army, where many of the officers have been, and might again be, good privates, and, at any rate, where they all can tell a good soldier from a poor one, and where also the soldiers can generally decide rightly which of their officers are capable and which are not. But this does not militate against the proper relationship between officers and privates, nor should it do so between nurses and the doctors they serve under.

The one important fact, and the corner stone of the foundation of modern medical and nursing joint service, is that nursing is only a subordinate branch of medical practice. The nurse, first, last, and all the while, is only the doctor's assistant. He is the captain and she is his executive officer. As his lieutenant, in his absence she, of course, acts for him.

The patient's interests both doctor and nurse must hold in common and always hold above their own interests. And this obligation requires perfect cooperation. Any antagonism, any disloyalty, between the doctor and the nurse harms them both, and also, and far more grievously, harms the patient.

This is only a paraphrase of Florence Nightingale's immortal teaching. And I repeat it today only to emphasize our gratitude to this hospital for its faithful adherence to these principles.

I am sure that I am voicing the judgment of my medical brethren of Massachusetts in testifying to the uniform excellence of the nurses who have had their training in the New England Hospital for Women and Children. They have proved themselves to be loyal and faithful. And, with very few exceptions, they have withstood the ultra-professional tendencies of modern nurses toward their fictitious independence of the medical profession.

To have thus maintained this high standard of nursing service is higher honor for this training school than even its American priority.

With our heartiest felicitations, on this its fiftieth birthday, and with our deep gratitude

to its distinguished founders and able managers, we join our most fervent good wishes for its continued success and ever-increasing glory.

Original Articles.

THE IMPROVEMENT OF HEALTH CONDITIONS IN RURAL COMMUNITIES.

BY M. VICTOR SAFFORD, M.D., BOSTON.

As has been suggested by the report of the Committee of the Massachusetts Medical Society "to investigate health problems in relation to the care of the sick in rural communities," the difficulty in securing satisfactory medical care in the rural communities is fundamentally economic in character. The physician avoids the rural communities because they do not give him an adequate return on the investment represented by the cost of a modern medical education.

There is no difficulty in securing competent physicians, and nurses and hospitals to provide up-to-date medical and surgical care for mining camps, rubber plantations or other industrial organizations in the remotest parts of the world whenever reasonable compensation for such services is forthcoming.

If a Massachusetts community is going to have facilities for up-to-date medical care, physicians, nurses and opportunities for dispensary or hospital treatment, somebody has got to pay for them. Furthermore, somebody has got to pay to educate the complaining communities to appreciate and make intelligent use of facilities for up-to-date medical care even if such facilities could be furnished free of cost. An occasional howl of disappointment when somebody finds himself unable to secure a doctor promptly to relieve pain or help to take care of a sick, burdensome dependent is not to be mistaken for an intelligent demand on the part of a community for proper medical care for that community. A large part of the so-called public health work in Boston or any other big city today is devoted to more or less unsatisfactory effort to induce people to make use of facilities for medical care which are available for them.

Medical care and educational work in these Massachusetts communities which are complaining of lack of doctors should be paid for by those who will most directly and most obviously benefit therefrom—by the people of the community itself if possible, but if not, by the people of the geographical district of which the community forms a part. If the people of the district are financially unable to provide proper medical care and medical education for themselves the first thing to do is to so improve the economic condition of the people—to so increase the average per capita purchasing capacity of

the people—that they as a whole may be able to do so. It is not to be expected that every individual will be able to contribute equally for this purpose. The minority in every community always have had to and always will have to look out for those who do not possess the capacity to properly look out for themselves or their interests, if the interests of the latter are to be looked out for at all.

We must not assume that the medical needs of these communities may be supplied by the State, the Medical Society or the Red Cross. An attempt to remedy a situation due fundamentally to unsatisfactory economic conditions, without attempting to improve these economic conditions, is not only economically wrong, but will not produce any permanent practical results in the way of the promotion of public health. Our experience in Porto Rico furnishes a good illustration of the uselessness of expenditures for medical care and health work without remedying underlying unsatisfactory economic conditions. In the Massachusetts rural medical problem there is even less excuse for State expenditures than in Porto Rico. Epidemic diseases, polluted soil or polluted water supplies are not an appreciable factor in producing unsatisfactory economic conditions in these complaining Massachusetts communities. In some Massachusetts communities, however, a factor in producing unsatisfactory economic conditions can be found to be the result of a failure on the part of our people and their legislators to discriminate between proper and improper subjects for the exercise of governmental powers in the way of legislation and taxation.

If the people and industries of Massachusetts are not the most heavily taxed of any State in the Union, as has been claimed, the State certainly stands among the first in this respect. The taxes collected in Massachusetts by State authority alone have increased from \$85,818,000 in 1910 to \$198,116,000 in 1920. This is exclusive of the taxes collected under the authority of the United States Government, which raised the total furnished in taxation in 1920 by the people of Massachusetts to \$457,012,000, or practically half a billion dollars. The people of Massachusetts paid in 1920 three and a half million dollars interest on a State debt which has been incurred in various justifiable and unjustifiable expenditures for the supposed promotion of public welfare. Rich States like New Jersey and Pennsylvania, with which Massachusetts must compete industrially, have comparatively small recently created State debts.* The people of Massachusetts are paying more and more every year to support an ever-increasing army of city, county and State officials or employees to promote their welfare.

*June 1, 1922, the State debt of New Jersey was \$17,116,000 and that of Pennsylvania was \$43,878,672. On December 1, 1921, the net State debt of Massachusetts was \$84,266,916.

Everybody contributes directly or indirectly to meet taxation and suffers in purchasing capacity in consequence thereof. This is why, when a man with some capital feels inclined to start a new enterprise in a Massachusetts community, he is likely to change his mind and invest his money in some other State where the risks to his investment from regulations and taxation seem less. A very large part of the taxes collected in this State are derived from the income from past savings of Massachusetts people which have been invested in enterprises elsewhere for this very reason.

What has been stated with respect to the futility of spending State funds in communities to improve a medical or health situation due to economic causes, applies equally to the expenditure for similar purposes of Red Cross funds, anti-tuberculosis society funds or funds of the Massachusetts Medical Society or any other private organization without in some way at the same time bringing about more satisfactory economic conditions.

There is an altogether too ready acceptance of claims of both official and non-official popular health or welfare organizations that decreases in infant mortality, in deaths from tuberculosis and other apparent improvements in health conditions are to be attributed to the activities of these agencies when such results are really due to improved economic conditions. Changes in economic conditions, lucrative employment, or unemployment, an increase or a decrease in the family purchasing capacity in a city, or a certain district of a city, is very quickly reflected in official statistics, as decreases or increases in morbidity and mortality. Other factors, of course, may enter to cause fluctuations in morbidity or mortality rates, but it is to be noted that both official and unofficial health agencies are usually silent with respect to their accomplishments except when morbidity or mortality is apparently decreasing.

SUMMARY.

We must realize that the problem of bringing about satisfactory rural medical care, which has been put up to the Massachusetts Medical Society, involves something more than devising new ways for a physician to give personal service to the public. The problem of proper medical care for rural communities in Massachusetts is fundamentally and chiefly an economic problem. In taking up this problem as it has, even to the extent of trying to point out a possible solution, the Massachusetts Medical Society is undertaking something which the Society was not designed to undertake.

The medical needs of these rural communities will not be satisfied by inducing competent physicians to practice in rural communities and by placing at the disposal of these physicians

and their patients such professional help and hospital facilities as members of the Society have it within their power to give. It is equally essential to the proper medical care of any community that provision be made for nursing service, for dental service, for health education, and in many instances for the means of securing household help or even a suitable diet. The money has got to come from somewhere to pay for these other essentials as well as to give a physician an income commensurate with the cost of a modern medical education. For reasons already stated it is believed that it is economically unsound and practically unwise to undertake to supply any of these essentials for proper medical care to a Massachusetts community unless the people who should be most directly interested—the people of the town, of a group of adjoining towns, of a part of a county or of a county—may be led to exhibit enough interest in their own welfare to undertake through local non-official civic organizations to so improve local economic conditions as to enable the people as a whole to provide and pay for their medical care, if at present without the resources to do so.

EMPHYEMA. REPORT OF ONE HUNDRED CASES.*

BY DONALD S. ADAMS, M.D., WORCESTER, MASS.

From the Surgical Service of Memorial Hospital.

A study of the hospital records shows 100 cases of emphyema from January, 1910, to January, 1920. There were 17 adults and 83 children. Of these 35 were females and 65 were males. Considering the age of the adult group, the youngest was 22, and the oldest 47, an average age of 30 years. Of those cases under 21 years of age the youngest was 3 months, and the oldest 18 years, an average of 5 years.

Ninety-seven of the 100 were frank empyemas and three were associated with lung abscess. A study of the predisposing factor or preëxisting illness revealed the fact that 94 had had pneumonia, three whooping cough and bronchopneumonia, and two of the lung abscess cases had inspired infected teeth during extraction under ether anaesthesia. One adult presented a metastatic origin.

Seventy-four cases were admitted with emphyema existing, and 26 developed the lesion on the medical side, having come in originally with pneumonia. The former group had been ill on the outside an average of 24 days, the longest 3 months, and the shortest 4 days, before being sent to the hospital.

Of the 97 frank empyemas the diagnosis was clinched in each case by the insertion of a

*Read before the Worcester District Medical Society, February 8, 1922.

needle. The lung abscess cases were diagnosed by the x-ray findings, history, physical findings, evidence of purulent expectoration, and in one case at autopsy. The treatment in all cases was operative.

It is of interest to note that, considering the entire group, 45% were operated upon within 24 hours after discovery of pus; 22% within 48 hours; 20% within 72 hours; 5% within 4 days; 8% within 10 days.

The last group were all adults and all made good recoveries. In those 26 cases that developed empyema under the care of our own staff, the average time between the discovery of pus and surgical interference was two days, the longest time was 5 days and the shortest was 24 hours. And again considering the 100 cases as a group, the average time between admission and operation was 6 days, the longest 29 days (one of the lung abscess cases) and the shortest time 24 hours.

In this series the lesion was equally divided between the two sides of the chest. Adult: Left 8, Right 9. Child: Left 4, Right 39.

Drainage was attained by either resection of rib or simple thoracotomy, there being a preponderance of the more radical procedure. Adult: Resection 10, Thoracotomy 7. Child: Resection 74, Thoracotomy 9.

Drainage was maintained by rubber tubes 82 times and by rubber spool 18 times. Post-operative irrigation of the chest was done in 28 of the 100 cases.

The following methods of securing anaesthesia were employed:

Ether, adult 7; child 54. Chloroform, adult 1; child 12. Local, adult 7; child 5. Ethyl chloride spray, adult 0; child 7. Chloroform and Ether, adult 2; child 5.

It is of interest in passing to note that the inadequate method of spraying with ethyl chloride was done 7 times, needless to say all in children. All were rib resections, all desperate cases, and all recovered.

Cultures of the pus either obtained at the time the chest was tapped or at the operation were reported in 92 of the cases:

(1) No growth, adult 2; child 2. (2) Streptococcus, adult 3; child 22. (3) Streptococcus and Staphylococcus, adult 0; child 1. (4) Pneumococcus, adult 4; child 41. (5) Diphtheroid, adult 1; child 0. (6) Staphylococcus, adult 3; child 7. (7) Pneumococcus and Streptococcus, adult 0; child 5. (8) Pneumococcus, Staphylococcus, Streptococcus, adult 0; child 1.

The average time of patients in hospital from time of admission to discharge was 45 days; from time of operation to time of discharge, 43 days. The longest stay was 240 days and the shortest 1 day.

From a clinical standpoint the leucocyte counts were interesting. Fortunately they were recorded in each case. The highest count noted was 66,000; the lowest 7,000, an average of

26,000. The point of greatest interest here, however, was the fact that in the patients that died, with one exception, in each instance the count was either above 40,000 or below 10,000.

The following complications were noted, all among children:

Scarlatina...2 cases.

Multiple abscesses of thighs and arms...2 cases. In one of them, a true septicæmic form, the same organism was found as originally taken from pleural cavity. In the other case a different organism was grown. Both patients recovered.

Diphtheria...2 cases.

Pneumonia developing on opposite side but undergoing satisfactory resolution...2 cases.

Double otitis media...1 case.

Osteomyelitis of ribs at operative site...1 case.

Acute nephritis...1 case.

Two cases of Empyema Necessitatis were noted in this series. Both children, two and five years of age; type of infection, streptococcus. They made satisfactory recoveries.

Twenty-four deaths noted in this series, all among children. Actual mortality 24%, child mortality 28.6%. The average age of the children that died was three years, the youngest four months, and the oldest ten years. Eleven of these were two years of age or under. Considering the total mortality the following facts were ascertained:

Type of operation: Resection 21, Thoracotomy 3.

Bacteriology: Streptococcus 10, Pneumococcus 9, Staphylococcus 1, Streptococcus and Staphylococcus 1.

Admitted with empyema: 20.

Developed empyema in hospital: 4.

Anæsthesia: Ether 15, Chloroform 4, Local 3, Chloroform-Ether 2.

Irrigated: 4.

Not irrigated: 20.

Operated within twenty-four hours after admission: 12.

Number admitted in moribund condition: 8. But three postmortem findings can be recorded:

(1) Empyema and acute purulent pericarditis. Streptococci septicæmia.

(2) Empyema and abscess of lung on same side. Staphylococci septicæmia.

(3) Empyema and diffuse lobar pneumonia on opposite side. Pneumococci septicæmia.

Follow-ups obtained through letter or examining the patient personally: Children discharged alive, 59. Children accounted for, 20. Of these fourteen are alive and ten dead. Of the fourteen alive twelve were rib resections and two thoracotomies. Rib resections, 12 (alive and well at present time). Scoliosis and retraction, 2. Reoperation for rib necrosis, 1. Recurrence of pus at end of five years—same culture, 1. Well over period of six to eight years with-

out subsequent trouble, 8; Thoracotomies, 2 (alive and well at present time).

Of the six patients that are dead, two died within six weeks after discharge. These patients went out against advice and probably had poor care. One resection and one thoracotomy died of influenza. Two resections died of pneumonia five years after operation.

Adults discharged alive, 17. Adults accounted for, 12. One lung abscess case died one month after discharge. The other reports good health at the end of six years. Thoracotomies well over a period of two years, 3. Resections well over a period of six to nine years, 6. Resection died of bilateral lung tuberculosis, 1.

Again let us consider the entire group from an etiological standpoint. Ninety-seven per cent. were associated with pneumonia. Two lung abscess cases were found antemortem and one postmortem. Considering these in addition to an acute empyema following closely a pelvic abscess which was definitely a case of metastatic or blood-borne origin, we can see the relation to the etiological factors as enumerated by Wilensky¹.

(a.) Meta- or post-pneumonic.

(b.) Continuity from a neighboring perforating abscess, especially a lung abscess.

(c.) Metastases from a distant focus of infection. The first group he considers the commonest, which our series seems to substantiate.

The use of the needle was the means of arriving at a diagnosis in all of the frank cases. As Ladd and Cutler² point out, the needle is the dependable diagnostician. Morris,³ in discussing the exploratory puncture, shows that a massive pneumonia will very often simulate fluid in the pleural cavity. The tap will many times be dry, or if a drop of pus or fluid be gotten, the microscopic findings will be helpful in differentiation.

Operation was performed after discovery of pus in ninety-two per cent. of the cases within a period of four days. The remaining eight per cent. went as long as ten days before other means than simple aspiration were resorted to. This group was all adults and all recovered. When we consider this, together with the fact that one-half of the group of children that failed to recover were operated upon within twenty-four hours, we are more than convinced that early radical relief is unwise.

The average time in the hospital was forty-five days. From time of operation to time of discharge forty-three days, the type of operation having little apparent effect on the number of patient's hospital days. Diederich as quoted by Wynne⁴ reports forty postoperative days. The white blood counts presented a significant picture, in all probability merely coincidental. Apparently a very high leucocytosis, as well as a low one, meant one and the same thing, for it foretold a fatal issue in nearly every case. In

Wynne's series the highest count was 28,000, the lowest 7,000 and the average 17,000.

The complications offer nothing unusual. In fact they were few in number and in no case fatal. Morrison⁵ reports a case of empyema complicated by whooping cough with operation and recovery. Wilensky¹ gives a complete table of complications.

Our actual mortality in this series was 24%. The mortality among children 28.6%. As pointed out by Ladd and Cutler², as well as Hodge⁶, the age of the patient influences the mortality record. Thus the former noted 32% of deaths under two years of age, and 16% between the ages of two and twelve years. Nathan reported 78% mortality under two years and Dowd reported 25.6% between the ages of two and fourteen. Holt as quoted by Hodge⁶ noted 74% for first year, 59% for second year, and 13% for third year. According to our series: One year or under 55.5%, two years 45.8%, between two and fourteen years 21.8%, over fourteen no deaths. Thus, the younger the patient the greater the mortality.

The type of organism also influences the mortality. Holt noted 56% with pneumococcus, 79% with streptococcus and 50% with staphylococcus. Our group of cases showed pneumococcus 37.5% with streptococcus 41.1%, staphylococcus 4.1% and mixed infection 4.1%.

And lastly, the type of operation. All of our series received open treatment, but the more radical procedure gave the highest mortality—25%; thoracotomy resulted in 18.7%.

It is well to consider three things, as cited by Locke-Thomas and O'Hara⁷, before attempting to relieve a pyothorax. First the type of infection, second the general condition of the patient, and third the stage in convalescence. The patient with a broncho-pneumonia frequently shows effusion early in the course of the disease, and at a time when his general condition is poorest. Streptococci are usually found. Empyema is a later manifestation in lobar pneumonia, the patient having frequently reached a stage of early convalescence. The pneumococcus is the prevailing organism. Accepting these statements as facts, it is fair to assume that they are to be handled differently. The effusion containing streptococci is usually merely turbid at first, which indicates aspiration and contraindicates more radical measures. When frank pus finally appears and the physical as well as the clinical signs indicate underlying consolidations, together with a very ill patient, simple aspirations should be continued until it is apparent the drainage is inadequate or, as occurred in two of our recent cases, the formation of multiple abscesses and sinuses marking the point of insertion, an infection from within out, as evidenced by culture. It is then that the next least radical step should be tried, either the insertion of a catheter or simple thoracotomy. The patient with a pleura

infected by the pneumococcus or staphylococcus is usually found not to be suffering from an underlying pneumonia but from the toxic and pressure effects of an undrained cavity. This patient is benefited by an immediate catheter insertion or thoracotomy. The same may be said concerning a late streptococci process under which the lung condition has subsided.

This paper does not intend to argue in favor of either the closed or open method of treatment. The individual case must be studied and the operation chosen that will best meet the issue. For, after all, the object is the same,—to obtain drainage as completely as possible with the least taxation on the patient's physical resources and restore a sound chest in the shortest period of time.

No doubt a number of cases are cured by repeated aspirations alone. Stone reports 11% of three hundred and ten cases so cured, while Wynne succeeded in clearing up 3.5% by this least radical of all procedures. The closed method of treatment is applicable to the streptococci type of case. Especially is it of value in the desperate cases where both sides have to be drained simultaneously, as cited by Mozingo.⁸ The operation of choice, however, is simple thoracotomy with or without a valve flap. We should well agree with Hodge, who points out that rib resection should be saved for those cases that do not clear up with less radical means; where adhesions must be freed, or to clean up old sinuses and necrotic ribs.

But two forms of anaesthesia should be considered for these patients,—novocaine infiltration or gas-oxygen.

Whether one uses sterile water, saline, boric acid or, best of all, Dakin's solution as a form of irrigation, the results are more satisfactory than if the cavity is allowed to empty by overflow or lung expansion. One has only to see the clean wound of the former beside the soiled wound of the latter to convince himself. Whether one has the benefit of a perfectly titrated hypochlorite solution or must rely on that made up from the commercial product, in either case Dakin's solution should be the choice. Nothing has been suggested that so quickly liquefies necrotic tissue, and lessens toxic absorption. In our series twenty-four cases were chosen that recovered and of these twenty-one were irrigated while three were not. In choosing twenty-four cases that did not recover it was found that nineteen were not irrigated and five were. Thus the mortality of irrigated cases was 14%, whereas the unirrigated mortality was over 30%. It is fair to assume then, that the cleansing of the parts had something to do with the ultimate outcome.

And finally, let us not lose sight of the after-care. Proper diet, fresh air and sunshine mean a great deal. The blowing of bottles, soap bubbles, or inflatable toys, have their beneficial effect on lung expansion. The surgeon who insti-

gates the coöperation of the pediatrician or internist will be amply repaid by their judgment on the state of the underlying lung and by their suggestions during the postoperative stage.

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COMPARATIVE LUMINAL, BROMIDE, DIET, AND ELIMINATIVE TREATMENT OF EPILEPSY.

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THERE is much to be found in literature relative to the treatment of epilepsy. The individual so afflicted is severely handicapped for many reasons which are readily understood by those giving the subject consideration. He is generally considered to be in a class by himself in regard to associations, employment, treatment, and prognosis.

A group of fifty male patients varying in age from 19 years to 66 years, with an average age of 41.1 years, and duration of epilepsy ranging from three and one-half years to fifty-eight years preceding treatment, with an average of twenty years during which seizures have taken place in the thirty-seven cases, having reference in records to the time when seizures were first noted, was placed in the infirmary ward of the Grafton State Hospital, and drug and diet treatments were administered for six months, as follows:

GROUP 1. Ten patients received luminal or phenyl-ethyl-barbituric acid, grains one and one-half twice daily for three days, and then grains one and one half *once* daily for the remainder of the time with laxatives or cathartics, other than magnesium sulphate, as necessary.

GROUP 2. Ten patients received luminal, same dosage as above, with magnesium sulphate, one ounce, twice weekly.

GROUP 3. Ten patients received triple bromide, grains fifteen (sodium bromide, gr. five, potassium bromide, gr. five, and ammonium bromide, gr. five) daily with laxatives or cathartics, other than magnesium sulphate, as necessary.

GROUP 4. Ten patients received triple bromide, same dosage as above, but with magnesium sulphate, one ounce, twice weekly as cathartic.

GROUP 5. Ten patients were kept on a regulated diet with laxatives or cathartics as necessary.

Many of the above patients, before treatment was begun, had been receiving infirmity care, as it was considered advisable, due to their mental or physical condition, or both.

It will be readily understood that the cases have been derived from among those of the more severely afflicted with the syndrome which goes to make up the condition termed epilepsy, as well as being a group of more nearly middle-aged patients.

During a period of twelve months, beginning April 17, 1921, including three months preceding and three months succeeding treatment, 2,502 seizures were recorded, with an average of 4.17 seizures of all types per month for each patient. The total number of seizures per month for each group was tabulated as follows:

In Group 1. April 17th to 30th, 1921, 60; May, 176; June, 91; July, 51; August, 63; September, 80; October, 68; November, 66; December, 46; January (1922), 26; February, 30; March, 18; April 1st to 17th, 18.

In Group 2. April 17th to 30th, 1921, 49; May, 72; June, 56; July, 35; August, 40; September, 56; October, 29; November, 28; December, 33; January (1922), 32; February, 33; March, 31; April 1st to 17th, 25.

In Group 3. April 17th to 30th, 1921, 22; May, 48; June, 44; July, 39; August, 31; September, 31; October, 25; November, 21; December, 21; January (1922), 28; February, 19; March, 21; April 1st to 17th, 10.

In Group 4. April 17th to 30th, 1921, 32; May, 61; June, 43; July, 54; August, 37; September, 31; October, 34; November, 40; December, 23; January (1922), 28; February, 19; March, 21; April 1st to 17th, 10.

Group 5. In this last group they received a regulated diet of food material as outlined per capita, forming the usual balanced ration. In addition to this, elimination was afforded by the use of laxatives or cathartics when necessary. The total seizures per month recorded for this group were as follows:

April 17th to 30th, 1921, 22; May, 42; June, 32; July, 22; August, 37; September, 33; October, 33; November, 30; December, 41; January (1922), 27; February, 32; March, 24; April 1st to 17th, 3.

Using the three months' record of seizures previous to treatment as a starting point, it was found that the seizures varied as follows on a percentage basis:

GROUP 1: 351 seizures. The treatment period of six months, 361 seizures, or 50.14%. Post-treatment observation period of three months, 81 seizures, or 23%.

GROUP 2: 201 seizures. Period of treatment,

207 seizures, or 51.49%. Post-treatment period, 111 seizures, or 55.2%.

GROUP 3: 133 seizures. Period of treatment, 178 seizures, or 67.4%. Observation period, 88 seizures, or 66.16%.

GROUP 4: 156 seizures. Period of treatment, 213 seizures, or 68.26%. Post-treatment period, 64 seizures, or 41%.

GROUP 5: 102 seizures. Period of treatment, 199 seizures, or 97.5%. Post-treatment period, 77 seizures, or 75.5%.

All groups showed a few pounds gain in weight, except Group 4, in which there was a shortage of five pounds for the group.

Age of onset was given as infancy in two cases; childhood in three cases; two to five years in five cases; five to ten years in four cases; ten to seventeen years in ten cases; seventeen to twenty-five years in five cases; twenty-five to thirty years in two cases; thirty to forty years in three cases; forty to fifty years in four cases; fifty to sixty years in one case. The remainder were unknown or indefinite.

ETIOLOGICAL FACTORS.

Eating cherries, 1; measles, 1; whooping cough, 1; typhoid fever, 1; alcohol, 4. In the organic group, head injury was given as cause of three cases, and four cases hemiplegic. In eleven cases the patient was primarily mentally deficient; history of epilepsy in the family in six cases, insanity in three cases. One case of mental deficiency in family. Other cases unknown or indefinite. There are two diagnoses of epileptic psychosis, clouded states, while the remainder are given as epilepsy with deterioration.

Luminal Case Report. C. H., a negro, male, age 36 years, with history of grand mal attacks of epilepsy since seven years of age, of Group 2, appeared to take the treatment fairly well, with a lessened number of seizures, and some indications of drowsiness, with no complaints of ill feeling, was found, forty-one days after treatment was instituted, to have an eruption on the skin which was more pronounced on face, neck and upper extremities, after which luminal treatment was discontinued. Temperature the next day was 99.6°, pulse 82, respiration 20. This eruption, which resembled that of measles at first, was discrete and papular, surrounded by reddish areola and rather firm, spread over the entire body, and during the next few days it receded and disappeared. Also, the temperature became normal, and it was noted that he was in an improved condition. The eruption began to recur about fourteen days following the first appearance. There was evidently itching, though as a result of patient's limited mental capacity, little definite information could be obtained subjectively. The eyelids became edematous and conjunctivitis developed. The mucous membranes of the mouth and throat were

reddened, tonsils became swollen; the tongue presented a dry appearance, somewhat swollen, and acute bronchitis symptoms were present. There was no diarrhoea or localized tenderness in abdomen. The urine was highly colored, with acid reaction, specific gravity 1.020, trace of albumen, no sugar. Microscopic examination of urinary sediment revealed a few red blood cells and leucocytes, besides many epithelial cells and a few granular casts. The temperature never went higher than 102.6°, nor pulse over 124. The respirations were generally around 20 and 30 at the greatest. The condition became worse. The spots which were at first separated, more noticeably on the trunk, became confluent. The eruption afterwards took the form of a desquamating eczema, and later had a tendency to ulcerations, with pustular formation. Patient died twenty-seven days after first appearance of symptoms.

Bromide Case Report. Case of P. D., of Group 3. A white male, 59 years of age, with history of grand mal attacks of epilepsy of an indefinite duration, and who has been a patient in hospital during the last six years; fairly good physical condition; mentally deteriorated. He declined rapidly during treatment. There was evidence of motor depressant effect as well as lessening of activity of intellectual centers. Heart action affected. There was greater tendency to coldness of extremities, and treatment was discontinued at the end of fifteen days.

Diet Case. Case of A. J., of Group 5. Died during a seizure shortly after treatment was completed, and before observation time had expired.

Bromide Case. Two cases, A. G., and F. W., of Group 3. Unreliable, as seizures had been rarely noted, and there was none recorded during the entire time.

Luminal Idiopathic Case. Case of A. P., of Group 1. Was especially happy, and so he expressed it during treatment. He felt sure he was much improved, and wrote in glowing terms of the treatment which he was receiving. The seizures were fewer in number, he gained in weight, and general condition improved. He was more inclined to be helpful when possible. When treatment was discontinued, the seizures became more severe, his mental condition became more disturbed, making it necessary to remove him from the infirmary to a more suitable ward. This tendency is noted, to a lesser degree, in a number of other patients following luminal treatment.

Some of the luminal treatment patients appeared depressed and less inclined to mental or physical exertion, which also occurred in a case of bromide administration. In other cases of patients who were delusional or hallucinated the symptoms were enhanced, though it was generally recognized that as a whole the patients did not exhibit disturbed mental states to the degree

which occurred previous to treatment. The tendency to violence was not so great.

Bromide cases continued much the same during the post-treatment period as during the treatment period in regard to drug effect. Bromism was found in the greater number of patients following treatment, and in a few cases dementia, which was present at the beginning of treatment, either increased or a condition was produced which closely resembled it.

According to Grinker, *Journal A. M. A.*, August 28, 1920, he has tested one hundred cases of epilepsy with luminal, and some of his cases have been free from attacks for a period of from three to four years, others from one to two years, and still others, who constitute the large majority of cases, for a number of months. According to a recent communication from him, another article is to appear soon in regard to further experiences with luminal in epilepsy.

CONCLUSIONS.

Luminal has a place as a therapeutic measure in the treatment of the epilepsies, and when taken in the doses used, does not produce the mental torpor manifestations which occur in the case of administration of bromides, and in many cases it is more beneficial; yet, it should be used with greater care and with selective cases, because of toxic effects which may be attributed to it. Neither drug appears to be habit-forming.

In cases of both luminal and the bromides, active treatment periods completed, the seizures were more nearly controlled with the former drug. From the standpoint of numbers and oftentimes in regard to severity, cases of idiopathic origin were the more responsive. Diet and elimination treatment group obtains last place on the list, but are very important, either alone or in conjunction with other recognized methods of treatment. No particular laxative or cathartic appeared superior to others during this period, though in the post-treatment observation period Groups 1 and 4 contained the lowest percentage of seizures of the first four groups. Special care to avoid auto-intoxication in Group 5 played a very important rôle in the reduction of seizures obtained there. Beneficial effects were noted in all groups during post-treatment observation period.

FIBROMA AND SARCOMA OF THE OVARY. REPORT OF TWO UNUSUAL OVARIAN TUMORS.

BY JOE VINCENT MEIGS, M.D., BOSTON.

THIS paper is written for the purpose of reporting two unusual ovarian tumors removed from patients at the Free Hospital for Women in Brookline, Mass. The first case revealed a combination of fibroma and fibro-sarcoma in one

tumor, with small fibromata of the other ovary. The second case combined a fibroma and malignant papillary cyst-adenoma with a malignant papillary cyst-adenoma of the other ovary.

In the literature that has been reviewed for this paper there is no actual case reported of either of these types of mixed tumors of the ovary. Cullen³³ reported a case of carcino-sarcoma of the ovary, the sarcoma probably developing from the stroma of the adeno-carcinoma, although which was primary could not positively be determined. Forssner³² reported two cases of carcino-sarcoma of the ovary. Before presenting the two cases a brief résumé of the literature on fibroma and on sarcoma of the ovary will be given.

The origin of fibromata of the ovary is uncertain, according to Aschoff. The points of probable origin follow:—(1.) From an inflammatory exudate on the surface of the ovary. (2.) From a corpus albicans. (3.) From a corpus luteum. (4.) From the stroma of the ovary. (5.) From the capsule of the ovary.

Fibroma must develop from connective tissue and Hellman¹⁵ states that "connective tissue can be found in the stroma, corpus luteum, corpus fibrosa, in the organized blood clots and in the capsule." These tumors probably develop from one of the above sites; some from one site and some from another.

They grow in three forms: The diffuse, in which the whole ovary is involved; the circumscribed, in which only a portion of the ovary is involved; and the pedunculated type, which is very rare.

Fibromata of the ovary are not very common, although probably more so than most writers state, the usual estimate being that they form two per cent. of ovarian tumors. Howell, in "The American System of Surgery," states that they are not as rare as might be inferred from the literature. Martin-Jung-Schmitz²² states that "fibromata of the ovary are relatively frequent." Petersen,²⁴ writing in 1902, says that "the work of Doran-Briggs-Coe, and others, has shown conclusively that the disease, while rare, is common enough to necessitate consideration from the standpoint of diagnosis." He was, however, in 1902, able to collect only 82 cases in the American literature. Fullerton¹³ believes that pure fibromata are very rare. Clark and Gabe,⁶ whose article is the latest upon this subject, state that "ovarian fibromata are sufficiently rare to warrant the report of all carefully studied cases."

Fibromata of the ovary are not common in young people. They usually occur in women at about the time of the menopause.¹⁵ One case of a fibroma in a girl of 17 was considered unusual. Coe, however, considers them the product of youthful and active ovaries, not of senile. The age limits given are 17 to 72.²⁴

The symptoms are not definite, the most common being pain due to pressure from the tumor,

and ascites. If the tumor has reached a large size it may be noticeable to the patient as an increase in the size of the abdomen. Loss of weight is noticed in some cases, especially those with ascites. Coe⁷ reported the interesting case of a woman whose abdomen, at operation, was found to be full of fluid and was closed because a malignant tumor was thought to be present. The patient was tapped twice later, and finally was operated upon again, when a fibroma was removed. This patient had typical symptoms of malignancy, but was cured upon removal of a fibroma of the ovary. Numerous cases objectively show ascites, the percentages being from 5 per cent. (Hellman) to 40 per cent. (Petersen).

The tumors vary in size from 1 cm. or less to the size of a man's head or larger. They are usually freely movable and non-adherent. These tumors usually are unilateral, although bilateral fibromata may occur. Ascites is present in most of the cases, although it is not always present. The cause of this ascites is not known, and, as Coe⁷ says, "adhesions are rare and the tumors very slow growing and non-irritating. Therefore the question of ascites is a puzzle." Fullerton¹³ believes the presence of ascites is the reason for the non-adherence of these tumors. The cause of ascites is variously stated as follows: It may be due to a chemical action, to a mechanical, to a hyperemia, or to a secretion from a degenerating tumor.

The treatment is simple excision of the tumor and ovarian tissue. The prognosis is excellent, for probably very few of these tumors become sarcomatous. In fact, no definite case was found reported in the references studied.

Sarcoma of the ovary is said to be more common than fibroma, the percentage given being 5 per cent. of all ovarian tumors. These tumors originate, as do fibroma, from any of the areas of the ovary containing connective tissue. Reel²⁸ states that he found a specimen of sarcoma of the ovary which apparently took its origin from a tumor of this type (fibroma). This is the only suggestion of a case similar to Case No. 10026, reported below. Graves¹⁴ states that "sarcomata of the ovary are very rare tumors. They may originate as a malignant growth or they may represent a degeneration of a fibroma." Johnson¹⁶ feels "that fibromata of the ovary are more subject to malignant and other forms of degeneration than are fibroid tumors of the uterus." From these opinions it can be inferred that probably some of the fibro-sarcomata of spindle-cell type develop from a fibroma of the ovary. Case No. 10026 seems to be an incidence of this type of case in which the sarcoma in all probability developed from the fibroma. Most writers believe sarcoma of the ovary to be bilateral, and that ascites is a most usual occurrence.

There are two main types of sarcoma of the ovary which probably do not develop from the

same type cell. (Myxo-sarcoma, chondro-sarcoma, etc., are not considered in this paper.) One occurs in extreme youth, the other much later in life. In child life before the age of five 50 per cent. of all sarcoma of the ovary occur,³¹ and 50 per cent. of ovarian tumors before the age of five are sarcoma.¹⁹ These tumors are usually bilateral, soft, spongy, and of the round cell type of sarcoma. The type cell is not known. According to Ewing,³⁵ "it seems probable that some of the tumors with indifferent round cells are to be interpreted as one-sided developments of teratoma." Further, "the round cell sarcoma of the ovary is an ill-defined and rare form of malignant tumor which occurs chiefly in young subjects or children and proves rapidly fatal." They probably can be compared to the embryoma of the testicle. In adults the type of tumor is usually the hard, fibrous, fibro-sarcoma of the spindle-cell type. Porter³⁴ believes that "fibro-sarcoma of the ovary is less malignant than the other forms of sarcoma of the ovary." The two types are probably quite distinct and separate.

The treatment is hysterectomy with bilateral salpingo-oophorectomy, because this type of tumor is often bilateral, and also because it may metastasize to the uterus. The prognosis is not good.

The two cases reported below are interesting because they combine fibroma with two different types of tumors, a fibro-sarcoma in one, and a malignant papillary cyst-adenoma in the other. The opposite ovaries were involved in both cases, the first containing small fibromata, and the other a malignant papillary cyst-adenoma.

The two cases follow,—history, examination, operative findings, and pathological report. The stains used to prove the tumors actual fibromata were hematoxylin-eosin and Van Gieson's picro-fuchsin.

CASE 1.—13719-10026. Mrs. M. O., aged 53; children, one; miscarriages, two. Since October, 1921, the patient has noticed a mass in the left lower abdomen, accompanied at times by distention. This mass has not increased much in size, but there has been a loss of weight. The menopause occurred two years previously. In 1912 plastic operations were performed at the Free Hospital for Women.

January 12, 1922.—Examination reveals a movable tumor in the abdomen, and a question of fluid and malignancy.

January 19, 1922.—Operation by Dr. Graves: Supra-vaginal hysterectomy, midline incision. A large tumor is found, suggesting an ovarian cyst. Abdomen is full of blood-tinged fluid. No nodules are felt in the liver. Pedicle of the cyst of the left ovary is clamped and cyst removed, as well as the uterus with the other ovary and tube.

March 23, 1922.—Examination: Patient feels well and is gaining weight. Vaginal examina-



PATH. No. 10026.—This photograph shows a small fibroma in the upper left-hand corner of the tumor mass. Its tissue is harder and more fibrous than the rest of the tumor, which is soft and friable. The tumor measures 15x12x12 cm.

tion shows slight resistance in the right side. No glands felt.

Macroscopical Examination: Specimen consists of a uterus with both tubes and ovaries. One tube and ovary separate. The left ovary is a tumor measuring 15x12x12 cm. This tumor consists of two parts, one a definite fibroma, which measures 3x3x4 cm., with two smaller tumors of the same type on its surface. The other part consists of soft, fibrous material that is of a fish flesh texture. At one end there has been some necrosis, and the tumor here is soft and bluish. The smaller part (fibroma) is not encapsulated. The tube is spread out over the surface of this tumor. The right tube and ovary are attached to the uterus. The tube is not remarkable. The ovary is covered with small nodules and measures 3x5x2 cm. Uterus contains multiple fibroids and measures 5x7 cm. Endometrium is 2 mm. thick, smooth except for one small polyp.

Microscopical Examination: The polyp is a polyp of the endometrium. The tubes are normal. Endometrium is atrophying. The piece of tissue from the probable fibroma of the ovary shows very compact connective tissue with but few nuclei. The cells and fibrils are very compact, with bundles which seem to run in many directions. There is a great preponderance of collagen fibrils. There are no mitotic figures to be seen. This tumor is a fibroma. Sections of the softer tumor show a tissue rich in nuclei and in nuclear figures. There are many mitoses present. There is not a thick deposit of connective tissue fibrils, and the nuclei are the most evident structure in the tumor. In one area there is seen the junction of the fibroma and the fibro-sarcoma. There is an abrupt change between the two types of tissue. A definite line

can be followed for the whole length of the section, and in no part is there confusion as to which is fibroma and which is sarcoma. There is no capsule seen, the two different tumors being intimately joined together but being totally different at their junction. The other ovary shows small areas of fibrous tissue, growing on the surface, that give the impression of small early fibromata, and are totally different from normal ovarian tissue.

Diagnosis: Endometrial polyp; atrophying endometrium; normal tubes, multiple leiomyoma of the uterus; small fibromata of the right ovary; fibroma of the left ovary; fibro-sarcoma of the left ovary.

CASE 2.—No. 13862-10210. Mrs. I. K., aged 55; children, five; miscarriages, none. For about ten years the patient has been aware of a slight tenderness on pressure in the left lower part of the abdomen. About two months ago this tenderness spread to the opposite side of the abdomen. Menopause occurred eight months previous to entry.

April 3, 1922.—Examination reveals a large, somewhat mobile, abdominal tumor; genital atrophy; and a lacerated cervix which is nearly taken up.



PATH. No. 10210.—Fibroma and malignant papillary cyst-adenoma of the ovary. This photograph shows a fibroma of the ovary being invaded by a malignant papillary cyst-adenoma. The tumor measures 21x14x10 cm.

April 5, 1922.—Operation by Dr. Graves: Supra-vaginal hysterectomy; appendectomy. Midline incision. A large, hard, white tumor of the right ovary is found, with small cystic masses on its anterior surface, which is adherent to the rectum, small intestines, and the surrounding tissues. On the left is an inky-blue colored cyst of the left ovary which is only slightly adherent. The uterus is small and



PATH. No. 10210.—This photograph shows the outside of the combined fibroma and malignant papillary cyst-adenoma

normal in appearance. Gall-bladder and kidneys feel normal. Adhesions were freed and a routine supra-vaginal hysterectomy performed.

Macroscopical Examination: Specimen consists of a uterus with both tubes and ovaries attached, and the appendix. The uterus measures 7x3x2.5 cm. The uterine cavity is 4 cm. long. Endometrium is 2 mm. thick. There is a small nodule in the posterior wall of the uterus at the junction of the fundus and the cervix. The right ovary presents a tumor which measures 21x14x10 cm. The tube is attached to the tumor and is spread out over its surface. The tumor is composed of a large, fibrous mass that is nearly divided by a growth of many small cystic masses filled with a clear fluid and containing masses of a papillary growth. The surface of the mass is covered with these small cystic growths, that seem everywhere to be invading the solid tumor. The other ovary is composed of a cyst, measuring 11x6x4 cm., which is filled with the same sort of material as is contained in the cysts of the other ovary. There is no solid fibrous tumor structure in this ovary. The left tube is a hydrosalpinx measuring 8x4 cm. In some areas in both tumors the papillary growth has grown outside the cysts and is spread over the surface of the main tumor, and in places is invading it. The appendix is 3 cm. long and appears to be normal.

Microscopical Examination: Atrophied endometrium. Normal appendix. The cystic tumor of the ovary is a malignant papillary cyst-adenoma. The epithelium in places is growing rapidly and numerous mitotic figures are present. In one slide the growth is seen invading the solid tumor. The epithelium is cuboidal and the cyst is of the serous type. The solid tumor is made up of fibrous tissue running in bands. There is a great quantity of collagen



PATH. NO. 9938.—This photograph shows a fibroma of the ovary with normal ovarian tissue spread over its upper surface. There are a few small follicular cysts in the ovarian tissue. The tumor measures 10x10x9 cm.

fibrils, and the nuclei are not numerous. In some areas the connective tissue is spread apart by edema. This tumor is a fibroma of the ovary. The small nodule found on the back of the uterus on section shows a great many gland structures and papillary projections. The epithelium in areas is cuboidal, and in other places it is heaped up. This tumor contains many mitotic figures and is probably a metastatic nodule from the malignant cyst.

Diagnosis: Atrophied endometrium; normal appendix; hydrosalpinx, bilateral; malignant papillary cyst-adenoma with epithelium of the serous type, bilateral; metastatic adeno-carcinoma; fibroma of the ovary.

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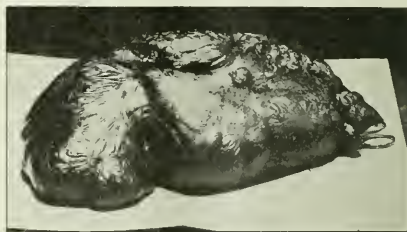
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A LIPOMA WEIGHING TWO AND ONE-HALF KILOGRAMS, TAKEN FROM THE INNER ASPECT OF THE RIGHT ARM.

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THIS case, while perhaps not exactly an exceedingly rare one, and even though it did not present much difficulty in diagnosis, is nevertheless very interesting, and, it seems to me, well worth reporting, because of the unusual size of the tumor and its unusual location.

The patient, F. S., shown in the accompanying photograph, was admitted to the Worcester State Hospital, June 23, 1922. From him the following story was obtained. He is an old man, seventy-nine years of age, who about thirty years ago fell and sustained some injury to his shoulder. He did not know the exact nature of this injury, or if any bones were broken. About



Tumor after removal.

seven years ago a small lump appeared in the inner aspect of his arm. This small tumor did not bother him any, and he did not pay much attention to it. He went about his work as a contractor, and says that it did not bother him in any way. Its growth was very insidious, and he claims that it did not begin to grow rapidly until about two years ago, when he had to stop work, and then it began to get larger quite rapidly. All this time he has had this tumor under his arm, he claims that it has never bothered him, except as a mechanical hindrance, and he was not at all enthusiastic about having it removed.

Upon examination we find a large, oval-shaped mass, hanging from the inner surface of this man's arm. It was rather soft, and semi-fluctuating, so that when the patient told us that a doctor had previously removed fluid from it,



Roentgenogram of arm.

we were almost ready to believe him, and were trying to figure out how a man of his age could be possessed of a cyst under his arm; and if a cyst, from what did it originate? However, on closer examination the tumor was found not to be perfectly oval in shape, but to be somewhat lobulated. It did not seem to be adherent to the deeper structures below, and it was not adherent to the skin above, although when the tumor was moved the skin above it would become somewhat wrinkled. It was quite freely movable and could be moved about on his arm quite easily. It was not in the least infiltrated



Patient, showing tumor of right arm.

and the skin at its point of attachment could be almost approximated with that on the other side. To be absolutely sure, however, that it was not a malignant affair, an x-ray was taken of the arm to rule out the possibility of any involvement of the bone, which might have been excited by the old injury. We were fairly certain, however, that it could not be sarcomatous or carcinomatous, because of the consistency of the mass, and the fact that the patient was in such good general condition.

Having satisfied ourselves that this was benign, the differential diagnosis must rest between one of three things:

1. Lipoma.

In favor of this we have a large, oval, rather lobulated, semi-fluctuating mass, which grew very insidiously and has never caused the patient any pain, or even discomfort outside of the fact that being so large it became a mechanical hindrance to him. It was subcutaneous and not fastened tightly to the skin or to the deeper tissues beneath.

2. Fibroma of the soft type. (Fibroma Molle.)

There was nothing which could really enable us to rule this out—although if it were a fibroma we would be inclined to expect it to appear more suddenly than this tumor mass did. Also the fact that it was somewhat lobulated would be more in favor of a lipoma, but would not by any means rule out a fibroma.

3. Myxoma.

These generally occur as rounded tumor masses, and from the characteristics of the tumor itself I do not think it could be differentiated from either a fibroma or a lipoma. These tumors sometimes originate in the sheath of nerve trunks, and if this was the case this would be an excellent location to expect such a growth. All of these conditions were considered and before operation opinion was still divided as to whether it was a lipoma or a fibroma.

At operation the mass was easily enucleated by Dr. Curran, and the tumor shown in the accompanying photograph was removed. It was found to weigh 2.5 kilograms, and measured 28x19x11 centimeters. The pathological examination showed it to be a typical lipoma.

The patient's arm has rapidly healed up and he is now very much elated that he is free from this cumbersome mass.

A NEW METHOD FOR THE ESTIMATION OF PEPTIC ACTIVITY OF GASTRIC CONTENTS, SUITABLE TO CLINICAL APPLICATION.

BY C. W. MCCLURE, M.D., BOSTON, AND
F. L. E. SCHABACKER, BOSTON.

[From the Evans Memorial.]

THE present communication is the description of a practical method for the estimation of pep-

tic activity of gastric contents, conforming to the general principles of enzyme action as at present understood; and of the application of the method to the determination of peptic activity of the stomach contents of human beings.

Up to the present the determination of relative quantities (concentration) of pepsin in stomach contents, as ascertained by the estimation of peptic activity, has been of very little assistance in explaining gastrointestinal symptomatology. One of the several reasons for this lies in the fact that methods for estimating peptic activity in gastric contents have given such variable results that only most inaccurate knowledge of the concentration of pepsin present could be obtained. The variability in results is due to the fact that the methods have not conformed to the general principles resulting from the application of physical chemical concepts to enzyme action. Obviously, a method conforming to these principles is necessarily one of the first steps in determining whether possible abnormalities in peptic activity play a rôle in the production of gastrointestinal symptomatology, and this is the reason for the present study.

The reagents required and the technic of procedure of the new method are as follows:

Great care was exercised in the preparation of the buffer solution, as it was felt that the uniformity and purity of this factor determine in large measure the course of all enzymic digestions.

A stock solution of hydrochloric acid was prepared by distilling a 20 per cent. pure acid in quartz, collecting the middle third of the middle third, and diluting the distillate to the desired strength (about half normal) with freshly distilled carbon dioxide free water. The strength of the acid was determined by exact gravimetric analysis as silver chloride.

Sodium hydroxide was prepared free from carbonate in a manner recently described,¹ and which may be summarized as follows: Forty-five grams of initially very poor sodium hydroxide were dissolved in 500 c.c. of freshly distilled water, the carbonate content determined by titration at 0° C., precipitated as carbonate with an excess of pure barium hydroxide, and the excess of the latter, after careful gravimetric analysis, removed as the sulphate with the calculated amount of pure sodium sulphate. The strength of the alkali was determined by titrating with the acid as described above, using weight-burettes and methyl red as the indicator. It was stored in paraffin-lined bottles and protected against carbon dioxide contamination by a soda lime tower.

Crystallized citric acid of the highest purity was next dissolved in carbon dioxide free water, the resulting solution being slightly in excess of half molal. Exact analyses of its strength were made with the sodium hydroxide described above, again using a weight-burette for the lat-

ter. Into a one-liter graduated flask was measured exactly enough of the citric acid to give 52.52 grams of the original solid. To this was added by weight enough of the sodium hydroxide to produce two-thirds neutralization of the acid. The volume was then made up to one liter, giving a fourth molal solution. This was used as the stock solution, keeping it in a paraffin-lined bottle and diluting with carbon dioxide free water to the final concentration of M/16 disodium monohydrogen citrate. To all solutions containing the sodium citrate thymol crystals were added to prevent the growth of molds.

N/10 HCl is made by diluting the acid described in the foregoing section to proper concentration, and titrating the strength with the standard NaOH also described, using weighing burettes and methyl red as the indicator.

The sodium citrate-hydrochloric acid mixture is prepared by pipetting 300 c.c. of the M/16 sodium citrate solution into a liter volumetric flask, rinsed with N/O HCl, and making up to the mark with N/10 HCl.

Edestin solution: One (1) gram of edestin,* weighed within an accuracy of 1 per cent., is placed in a mortar. The edestin powder is then titrated with a few c.c. of the sodium citrate-hydrochloric acid mixture to make a paste; by rapid trituration and slow addition of the sodium citrate-hydrochloric acid mixture the edestin powder can be kept in a finely divided state, which will allow it to go into solution readily. A total volume of 100 c.c. of the acid mixture is added from an ordinary graduated measuring cylinder. A small amount of residue will not dissolve, and is readily gotten rid of by centrifugalization and decantation of the supernatant fluid.

Twenty-five per cent. metaphosphoric acid solution: The preparations of metaphosphoric acid usually obtained in the market should be fused in a graphite mortar until the white fumes of phosphorus pentoxid begin to appear. The fused material can be cooled conveniently by pouring on a clean pie-pan floating on cold water. Metaphosphoric acid so fused will remain a potent protein precipitant if kept in tightly stoppered bottles.

The 25 per cent. solution can be made quickly by triturating the desired amount of metaphosphoric acid and water in a mortar.

Digestion mixture and Nessler's solution are prepared as directed by Folin and Wu,² the standard ammonium sulphate solution as directed by Folin and Denis.³

TECHNIC.

Centrifugalize or filter a small portion of the gastric contents and place one (1) c.c. of the clear fluid obtained in a 100 c.c. volumetric flask, then fill up to the mark with the sodium citrate-hydrochloric acid mixture.

*The edestin preparation was furnished through the courtesy of the Arlington Chemical Company, Yonkers, N. Y. The authors take pleasure in acknowledging indebtedness for their cooperation.

Pipette 9 c.c. of the 1 per cent. edestin solution into test tubes (100 mm. x 10 mm.) and place in a water bath at 40° C. for five minutes. Then add one (1) c.c. of the diluted gastric contents to each tube, shake and replace in the water bath for a period of 60 minutes. At the end of this time remove the tubes and immediately add 2 c.c. of the 25 per cent. metaphosphoric acid solution, shake violently, allow to stand 60 seconds and filter, using dry filter paper. The filtrate should be perfectly clear. One (1) c.c. of the filtrate is Kjeldahl according to the micro-method of Folin and Wu,² in the following manner: To each of two of the large Pyrex tubes, recommended by Folin and Wu, one (1) c.c. of the filtrate is added. Then to one of the tubes one (1) c.c. of the sulphuric-phosphoric acid mixture is added and 2 c.c. to the other tube. Digestion is carried out as described by Folin and Wu.² In brief,⁴ this consists in boiling off the water and, when the white fumes of sulphuric acid begin to develop, the mouth of the tube is covered by inverting a small Erlenmeyer flask into its mouth. Digestion is continued for from 30 to 60 seconds after the last trace of brown color has disappeared. The tube is then allowed to cool for 60 to 70 seconds, from 5 to 10 c.c. of water are quickly added and the contents of the tube cooled. The contents of the tube, to which the 2 c.c. of the acid mixture were added, are transferred quantitatively to a 100 c.c. volumetric flask and the total volume made up to about 60 c.c. with water. Then 30 c.c. of Nessler's solution are added and the flask filled up to the mark with water. The nesslerized solution is centrifugalized to get rid of the sediment* and compared with standard ammonium sulphate solutions usually containing 0.25 and 0.5 mgm. nitrogen. These are prepared by placing 2 c.c. of the acid mixture in a 100 c.c. volumetric flask, adding 5 or 10 c.c. of standard ammonium sulphate solution containing 0.05 mgm. per c.c., about 60 c.c. of water, 30 c.c. of Nessler's solution and making up to the mark with water. If sufficient color does not develop in the flask containing the Kjeldahl filtrate, then the other tube is to be nesslerized. To this tube add water up to the 35 c.c. mark, 15 c.c. of Nessler's solution, and, if necessary, centrifugalize to get rid of any sediment. While this procedure practically doubles the work of experiment, it gives an elasticity to the method which experience has shown to be essential.

The total number of milligrams of nitrogen found in the filtrate, after the metaphosphoric acid precipitation, is taken as an index of peptic activity. Using this index, the peptic activity of gastric contents obtained from a small number of normal young men, has varied between 3.6 mgms. and 5 mgms. These gastric contents

were obtained an hour after the ingestion of the Ewald test-breakfast.

DISCUSSION.

Methods representative of those devised in the past for the estimation of the peptic activity of gastric contents may be divided into the following classes:

1. Those in which gastric contents act on a substratum in the form of a solid mass placed in them or in a dilute HCl solution to which gastric contents are added: To this class belong the methods of Mett and Grützner. The Mett method⁵ is the well-known one of measuring the lengths of coagulated egg albumin in capillary glass tubes, before and after placing them in a solution containing pepsin. In the method of Grützner⁶ pepsin is allowed to act on fibrin which has been infiltrated with carmin. The amount of carmin liberated is determined colorimetrically and is used as an index to peptic activity.

2. Those in which gastric contents act on a flocculent suspension of edestin, in dilute solution of HCl: The complete disappearance of the precipitate is taken as the end-point of digestion. To this class belong the methods of Farrington, Lewis and Brown,⁶ and of Brewster.⁷

3. Those in which gastric contents act on some protein dissolved in dilute HCl: In the method of Fuld,⁸ edestin is dissolved in diluted HCl, and mixed with an equal volume of gastric contents. The end-point of digestion is considered to be reached when ammonia, layered on top of the mixture, no longer gives a white ring. Gastric contents are added to the solution of an acid casein dissolved in dilute HCl, in the methods of Volhard⁹ and Gross.⁶ In the latter method the end-point of digestion is reached when no cloudiness is developed upon the addition of sodium acetate. In the method of Volhard the mixture of gastric contents and casein solution are incubated a specified length of time. Then the undigested casein is precipitated by the addition of sodium sulphate and filtered off. The filtrate is titrated with N/10 NaOH, against phenolphthalein, and the increased acidity is used to express the amount of peptic action which has occurred.

Schorer⁵ has developed a refractometric method for the estimation of the action of pepsin, and Northrup⁸ an electrical conductivity method. These methods are not practical for clinical use and will not be discussed.

In criticising such methods as those outlined, or in devising new methods which are clinically applicable to the estimation of enzymatic activities of fluids obtained from the gastrointestinal tract, it is important that certain factors be considered. These factors⁴ are (1) quantitative accuracy and practicability of procedures for estimating the amount of enzyme action; (2) uniformity of enzymatic activity; (3) proportionality of enzyme action; (4) stability of the

*The sediment must be pure white and not discolored by the precipitation of any of the coloring matter.

enzyme, and (5) the physical state of the medium in which the enzyme is to act.

Uniformity of enzyme action means that under a certain set of experimental conditions a given specimen of gastric contents will give the same results on repeated analyses. By proportionality is meant the relation existing between the amounts of material digested by varying quantities of gastric contents; *i.e.*, in the method here described 2 c.c. of the diluted gastric contents will digest one and one-half times as much edestin as will 1 c.c. of the same dilution. Stability of an enzyme is a term used to express the length of time an enzyme will remain active. The physical conditions under which an enzyme acts are important because in order to obtain uniformity of action the physical conditions must be constant. One essential reason for this is the fact that the size of the surface area of material exposed to enzyme action is a governing factor in the amount of the latter which will occur. Other factors are temperature, and the buffer conditions determining hydrogen ion concentration.⁹

In classes 1 and 2, under description of previous methods, the solid state of the protein to be acted upon allows for great variation in the surface areas of different preparations. In none of the three classes of methods was an attempt made to find hydrogen ion concentrations and buffer conditions which would bring about uniformity of enzyme action, nor was considered the effect of adding the gastric contents on the pH and buffer conditions of the medium in which the pepsin was to act. Furthermore, in most of the methods the technic used does not permit an accurate estimation of the end-point of digestion. From these remarks it is obvious that methods previously proposed for the estimation of peptic activity of gastric contents have not fulfilled the five conditions described above, observance of all of which are considered essential for a method whose use is designed to give information concerning relative quantities (concentration) of pepsin present in different specimens of gastric contents.

While devising the new method here described an attempt was made to find pH and buffer conditions which would give uniformity of peptic activity of gastric contents. During this attempt results were obtained which indicated that a sodium citrate-hydrochloric acid mixture modified the action of pepsin. Further investigation led to the mixture described under the technic of the method; and under the experimental conditions outlined uniformity of peptic activity is obtained. The proportionality obtained is 1:1.5; *i.e.*, 2 c.c. of diluted stomach contents will digest one and one-half times as much edestin as will 1 c.c. of the same dilution. Under the experimental conditions outlined it has been found that pepsin remains stable for a considerable number of hours. The physical condition of the edestin is that of a solution, so that the

factor of surface area is constant; and the possibility of disturbances in hydrogen ion and buffer conditions on the addition of the gastric contents has been obviated by sufficiently diluting the latter. This brief discussion shows that the new method is in harmony with the factors generally accepted as determining enzyme action, and which are considered essential for the estimation of enzymatic activity. Further, it is directly applicable to determining this factor in the gastric secretion, and permitting the possibility of an interpretation of results for physiologic or pathologic purposes. The procedure for digesting the filtrate, given in the description of the technic of the method, allows the determination of widely varying degrees of peptic activity. This makes easier the application of the method to the study of pathologic gastric physiology.

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FRACTURE-DISLOCATIONS OF THE HUMERAL HEAD.

BY WELLER VAN HOOK, A.B., M.D., CHICAGO.

It is time for surgeons to recognize that a revolution has taken place in the open treatment of joint-injuries and diseases through the knowledge that subcutaneous fat-tissue can be excised from its seat, even without pedicles, and replanted successfully in injured joint-cavities. For this artifice makes it possible safely to leave in the joint-cavity bone surfaces not covered by periosteum or cartilage, and synovial membrane but covered by fat-tissue. Even defects of joint-capsules and ligaments result in minimal disturbance of function if the space is filled in with fatty connective tissue.

The mode of action, the meaning of this effect of fat transplantation needs a moment's thought for its full comprehension. Fat-tissue is areolar connective-tissue having a tendency to the storing of oil in the cell-bodies. This tissue has an abundance of lymphatic spaces and channels and a fair degree of vascularity. It is probably not exceeded in adaptability by any other tissue in the body. Everyone knows how easily the areolar tissue retracts when illness occurs, how the eye-ball stands out, the cheeks shrink, and wrinkles appear, and how, in certain diseases, such changes as those just mentioned become relatively permanent. A laborer, exhausted by a day's activity, shows

the lack of water in his tissues in the same way; next day he is himself again. After typhoid fever the areolar-tissue is emptied of the fat which was stored in the cell-bodies. Over-feeding for some weeks is required to restore the fullness. In the first case the lymphatic spaces and channels are more drawn upon, in the second case the cells themselves are deprived of their store of fat.

Again, when this tissue is subjected to recurrent pressure, as about the ischial region and back, it undergoes a sort of thickening or condensation. *Per contra*, the fat about the female mammary gland is soft and loose. So when areolar-tissue is transplanted, it must soon conform, in some degree, to the new physiologic local requirement. In joints, if subjected to recurrent pressure, it becomes thinner, tougher, and more resilient; and it loses much of its oil and lymph-space distention. It becomes resistant to traumatism, yet it retains much of its resilience.

J. B. Murphy thought that the transplanted fat-tissue became hygomatous in character. But Lexer discredits the idea, with apparent justice, and shows how the transplanted tissue adapts itself to the new situation. He thinks that the fat-tissue, having undergone regressive changes, becomes vascularized in its new location by ingrowth of blood-vessels from the neighborhood, and that then a true but slight regeneration of fat-tissue can occur.

Moreover, by rapidly healing into gaps in other connective-tissue structures, transplanted fat-tissue prevents these structures from contracting adhesions to neighboring tissues, and leaves them free.

And this provision of surfacing tissue makes possible the growth of the endothelial cells lining the cavity over the engrafted structures, completing the capsule of the joint. Of course the foundation structure of the part is incomplete. Fat-tissue cannot replace wholly the lost bone, cartilage or fibrous connective tissue. The surgeon must bear this in mind and act accordingly. He must provide fibrous tissue and bone for support and muscle attachment where needed.

He who could successfully use this wonderful addition to our resources in joint-surgery must understand its principles and apply them. It is not to be forgotten that pedicled flaps, carrying with them their own blood and lymph supply, are superior to free flaps, for the latter cannot become as freely vascularized as the former. It is necessary to attach the flap where it is to grow, and the neighboring structures must not unduly interfere with it. And the joint must be dressed in such a position that relaxation is maintained until healing has occurred.

Then it must be remembered that functional management is most important. Massage and both passive and active motion are of supreme importance in gaining a functional success.

In carrying out this work dead spaces must be avoided, the distance between joint ends must be as small as possible. The most important structures are to be preserved (Lexer) and the re-establishment of muscular activity must be cared for.

The proper application of these general principles profoundly modifies all our previous conceptions of joint-surgery. Into other fields of their application we cannot now go; we are concerned with fracture-dislocation of the shoulder.

Fractures of the tuberosities of the humerus, whether extensive displacement has occurred or not, may well be treated as Speed¹ suggests, by open attack. The detached tuberosity may be held in place by a nail, screw or other mechanism. In such cases I would recommend raising a flap of areolar (fatty) connective-tissue from the side of the wound and suturing it to the capsule so that its body covers the bone-wound. Of course if the muscles could be attached otherwise to the humerus, the tuberosity could be sacrificed at once. Its value lies chiefly in supplying a point where the muscles can grasp the bone. If the small mass were removed, pedicled or free flaps of fatty connective-tissue would still need to be applied.

Where the whole head of the humerus has been broken off at the surgical neck, or separated at the epiphyseal line, or where a large part of the head is split off, healing takes place well enough if impaction has occurred, if reduction is effected or if aseptic re-attachment has been brought about by open operation. Incomplete reduction tends to much disability (Stimson's *Work on Fractures*).

But where dislocation of a comparatively small fragment, without muscle attachment, has occurred at the moment of fracture, the difficulty of replacement is usually great.

McBurney (*Annals of Surgery*) advised drilling a hole in the side of the loose body, and inserting into it a handled hook, which would give the operator a powerful grasp of the fragment that would enable him to draw the detached piece back into its place. In elderly, fat or feeble patients, the manipulations required may be so severe, so compromising to the neighboring structures that their desirability in opposition to the removal of the fragment may well come into question.

Tanton² reminds us of some of the older ideas as to treatment. He recalls the old, fabulous notion of letting the shaft unite to the fragment, and then reducing the dislocation with the aid of the shaft as a lever, the surgeon comfortably forgetting that, in the interim, the connective-tissues of the part would have suffered many deep-seated changes.

He recounts the method of Riberi, in which the head is left in its dislocated position, and effort is made, by early and prolonged mobilization, to produce a "humero-glenoidal ankyrosis." Despite the fact that the method has

been followed by some successes it is not to be recommended, for obvious reasons.

And he mentions simple reduction, which, even when successful (as reported by Buchanon, Lambret and Hitzrot), does not seem to him to give results superior to that of excision of the small fragment. Indeed, Tanton, agreeing with Buchanon, regards excision as the method of choice. Sir Robert Jones seems to have been successful in reducing many cases with good functional results, using bloodless methods.

Hennequin and Loewy³ assert that intra-capsular fractures at the shoulder heal as well as extra-capsular, in opposition to the conditions at the hip. They state that full recovery of function cannot take place in them beyond middle age in less than six months or a year, if at all, unless reduction is complete.

On the other hand, J. B. Murphy⁴ has reported a brilliant result after nailing the small fragment in place.

Pool presented before the New York Surgical Association a woman, fifty years of age, upon whom he had performed an open reduction of a subglenoid dislocation, fracture having occurred at the anatomical neck. A practically perfect result followed. Tilton advocated attempts at reduction if there were periosteal attachments. Mathews found it impossible to reduce after three to five weeks, the glenoid seeming to be practically obliterated. Lilienthal had had four cases of fracture-dislocation with the best result in the case in which he was obliged to remove the head.

So there are not a few surgeons who prefer excision of the fragment, while some attempt closed reduction or effect bloody replacement and add some form of osteosynthesis.

This paper is written to contend that, with the use of a flap of fatty connective-tissue, the preference should be given to excision of the fragment, except in unusual cases, where reduction can easily be effected in comparatively young people or where the displacement of one of the tuberosities, with attached muscle, necessitates reattachment.

For what is to prevent the shaft of the humerus from resuming its function if properly brought into the empty glenoid cavity after the removal of the segregated head? It would be, I think, the filling and contraction of the glenoid in delayed cases, the shrinking of the capsule, and particularly the formation of adhesions about the denuded, fractured end of the humeral shaft. And, if operation is done early this need not occur.

The following case presents a cogent argument for the propriety of this choice of procedure.

A lady of fifty-two years, with medium skeletal development, fat, flabby and of pronounced sedentary habits, was struck by an automobile and thrown upon the right shoulder. I did not see her until four weeks later, when Dr. E. A. Doepp called me in consultation. The very imperfect x-ray picture showed a saucer-like piece

of bone knocked off the head of the humerus and lodged downward below the glenoid cavity. In view of the patient's condition, replacement with osteosynthesis seemed inadmissible; excision appeared necessary.

The joint was opened by an incision that separated the pectoralis muscle fibres, and the detached piece was removed. The upper end of the shaft entered the glenoid cavity without trouble. And the arm was dressed in a position of extreme abduction, after a large pedunculated flap of fatty-areolar tissue had been raised from the soft parts of the neighborhood, accurately pushed down through the joint cavity, and fastened with catgut in place between the injured humeral head and the glenoid cavity.

Recovery took place slowly, although wound healing was ideal. A very skilled masseuse kept up slight motion and promoted the general nutrition of the parts. But after several months, even a pronounced paresis of the deltoid, due to the original trauma, was overcome, and motion is now almost perfect at the shoulder-joint in every direction.

In this aseptic case the interposed flap of fatty tissue filled in empty spaces, hastened coagulation, and prevented all injurious adhesions.

Conclusions:

(1) Where wounds of the bony surfaces of any joint or of its capsule have occurred, and especially where loss of substance has taken place, fatty tissue (usually subcutaneous areolar tissue) should be implanted to cover the defect, whether or not the injured tissue lies between articulating surfaces.

(2) Since transplanted fat-tissue must become vascularized before it can be permanently stable in its new histological and functional relations, pedicled flaps are better, *caeteris paribus*, than free flaps which must acquire entirely new blood and lymph vascular associations.

(3) The removal of fragments of the humeral head, after simple fracture, gives excellent results under aseptic healing. But muscular attachments must be re-established, capsular rents and bone surfaces deprived of endothelium should be covered with transplanted fascia and fat, dressing should be maintained in full abduction, and massage and passive motion must be instituted and kept up until the maximum of function is restored.

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The two extremes, the retarded pupil and the very bright pupil, have received a major share of consideration during the last two years from educators who are working on problems in primary education in psychological clinics and departments of research in city school systems.

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CENTENARY OF LOUIS PASTEUR.

On the 18th of December, at Columbia University, in Havemeyer Hall, a large meeting was held to pay tribute to the memory of the Great Pasteur on the one hundredth anniversary of his birth.

The participating departments of the University were the College of Physicians and Surgeons, the Department of Romance Languages, and the Faculty of Pure Science, in coöperation with University Extension—the Institute of Arts and Sciences. Dean Woodbridge of the School of Pure Science presided.

Emmanuel de Margerie, of the University of Strasbourg, French exchange engineering professor, spoke briefly on "France's Estimate of Pasteur." He emphasized the fact that France revered Pasteur not only as a scientist but as a man. He showed that Pasteur was a man of a deeply religious nature, and that "Faith" was one great characteristic which permeated his thoughts and helped accomplish his deeds. He stated that about 30,000 out of 36,000 communes in France have honored the memory of Pasteur by giving his name to a street or an avenue. He said that a large percentage of the school children of France answered "Pasteur" to the question, "Who was the greatest son of France?"

Gary N. Calkins, professor of protozoology, next spoke on "The Debt of Biology to Pas-

teur." He referred to Pasteur as a "consummate master of the methods of science," applying the scientific method to both medicine and biology, though being neither doctor nor biologist. "The greatest expression of his genius was the Glorification of the Scientific Method." He pointed out that achievement comes not from reflected radiance of the palace of research, but from within. In showing how Pasteur's mind worked progressively, he pointed out that from the great end-results in preventive medicine one could look back to his work on rabies, on anthrax, on chicken cholera, or the silk-worm epidemic, on the activities of minute organisms, and on the discovery of the rotary power of crystals and molecular asymmetry. He showed how Pasteur shattered the old theory of fermentation and the still prevailing notion that small living beings, even as large as eels and lizards, were produced by "spontaneous generation." He emphasized the point that Pasteur laid down the great principles which were the basis of the modern technique in bacteriology and surgery.

Dr. Frederick S. Lee, research professor of physiology, then spoke on "The Debt of Medicine to Pasteur." He referred to Pasteur as the revolutionizer of the science and practice of the healing art; as a dreamer who made realities of his dreams. He spoke particularly of his work on chicken cholera, anthrax and rabies, showing that Pasteur established three great principles:

1. That infectious diseases are caused by specific virus or organisms.
2. That the virus may be weakened by artificial means.
3. That the weakened virus may be used to protect against the stronger.

Dr. Lee had seen Pasteur in his great Rabies Clinic and spoke of him as "ever watchful, alert and sympathetic." Pasteur, he said, would accept no new fact except after repeated careful experiments; would arrive at no hasty conclusions, and was almost overconscientious in his carefulness. He vindicated, Dr. Lee said, the use of the laboratory as related to the bedside and the clinic. He waged constant warfare against "tradition not supported by facts," applying the method of proof by scientific experiment, the logical method of attacking all problems.

The one great lesson for a doctor to learn from the life of Pasteur is the dependence of true medicine on science and the methods of science.

Dr. Lee closed his address by turning to Professor de Margerie and declaring that the old friendship of France and the United States would ever be strengthened by the men of science in both countries who were following in the footsteps of the illustrious master, Pasteur.

TREATMENT OF MORPHINE ADDICTION.

We would not attempt to cure a consumptive of twenty years' standing in a few weeks, so why try to cure in haste a person whose system has been saturated with morphia, and who is suffering from as real a disease as the consumptive, writes Margaret Vivian, L.M.S.S.A., Lond., in the *Medical Press and Record*.

Most institutions for the cure of addicts either cut them off entirely and at once, or reduce their daily allowance so rapidly that much suffering is entailed, and they are discharged in a few weeks, almost sure to relapse.

The method used by this writer is much different and, as is logical, much more time consuming. Whatever the patient had been taking he is immediately reduced to two grains a day, on which dosage he can live comfortably. When he has become accustomed to this dosage he will eat and feel better. The daily dose is then reduced by one-quarter grain, each reduction remaining stationary until he has become accustomed to it. This is repeated until an allowance of one grain a day is reached, and eventually this is given at one time, in the morning, when it is most needed. From now on the reduction is carried out very slowly, one-half grain at a time, even if it takes 12 months to get rid of the last grain.

The hypodermic injection of emetine has been found a valuable ally. The writer used daily 3 doses of one-sixth grain each, reducing the dose after the first month or two.

 MEDICAL LITERATURE.

It is an awe-inspiring sensation, sometimes, as we sit upon the bank of the stream, to contemplate the flood of medical literature that pours past us like a mighty current, swollen and angry with the increasing burden of the spring freshets that are forced upon it. Where does it come from and whither does it go? Its sounds, we try to think, are in the distant hills of ideas and inspiration; its final resting places, we are forced to admit, are generally the dark cisterns of musty library filing shelves; cisterns always full but seldom drunk from. How often have we considered launching a frail bark on that mad torrent, but timidly withdraw, too conscious of the fate of the other flotsam that we see gliding past us. The bark that we would rather test on that strong course must be well framed and well timbered if we would have it live and tell its tale and carry cargoes.

There is a certain fascination about the printed word, especially if originally penned by oneself, and more especially if bearing the author's name, that is very subtle. We have all felt this hypnotic influence and struggled away from it or succumbed and produced, after great travail, an article, its main claim to distinction expressed by the candid phrase "a poor thing,

but mine own." We would advise any young author who contemplates throwing his chip upon the stream, either because he feels a message stirring within him, or for reasons of policy, to enter any large medical library and stand for a few moments,—like Clemeneau among the mastodons,—gazing upon those silent volumes in that great cemetery of ideas. If he is still eager then to searify white paper, let him get prayerfully to work. It may be that he can carve for himself a seat among the mighty and launch upon the world a new idea.

There are four types that usually deserve consideration. There are those that write but think not; there are those that think not and write not—and this abstinence deserves some credit; there are those that think but write not, and they form an intellectual and untried bulwark; and there are those honored few who think and give us their thoughts. Current medical literature is aptly named, for it comes through a stony channel and babbles as it flows, but it waters no gardens of the mind. It would be better for us all if its volume were reduced three-fourths, and so selected and directed as to irrigate the germs of ideas that lie dormant in our minds.

It is not a nihilistic text that we would preach, for the printing press is the greatest constructive engine in the world, but it must grind the wheat and not the chaff. If you have a message that must be delivered to the waiting multitude, no matter what the cost, then like Pheidippides of old, gird up your loins and make the effort; your achievement will be lasting and your memory honored.

 MEDICAL SCHOOL DORMITORIES.

"The Need for Dormitories at the Medical School" is the title of Dean Edsall's contribution to The Medical School Section of the Harvard Alumni Bulletin of December 7. The popular conception of the uses of students' dormitories has changed greatly in the last few years. Once considered of value for disciplinary reasons, because undergraduates could be herded together under the restraint of proctors, they have now, with the increasing country-wide difficulty of obtaining proper living quarters, become almost a necessity. The Medical School, as Dr. Edsall points out, is situated on the edge of a large city, somewhat remotely removed from desirable eating and lodging places. Many of the students come, unknown and friendless, from distant parts of the country and are forced to shift for themselves as best they can.

It is the theory among many older men, and men who are otherwise progressive, that what was good enough for them is good enough for the present generation. They are wrong in this, but their error lies in considering, or saying, that conditions which they were forced to meet

were good enough. One of the finer things about the present-day evolution of higher education is the interest and responsibility which the heads of our institutions are asserting towards their students as individuals. They are no longer regarded as impersonal beings who are to be crammed with as much technical knowledge as possible in a certain number of years, and then gotten rid of. Their hygiene, their physical well being, even their play are being regarded as factors in their lives to which we owe a duty. The students at the Medical School themselves, as evidenced by the report of a committee of their own number, feel the need of a dormitory and dining hall.

We are deeply interested in Dean Edsall's desire in this respect, and hope that the University may soon see its way clear to realize it.

CHILD HYGIENE.

Dr. Eugene R. Kelley, State Commissioner of Public Health of Massachusetts, in advising the Public Health Administration Section of the American Public Health Association at the Fifty-first Annual Meeting, in Cleveland, October 16, stressed the importance of a well-balanced nation-wide child hygiene program.

Dr. Kelley said, in part: "Two general methods of accomplishing the wide diffusion and application of public-health knowledge are naturally coming to the front. They may perhaps be designated as the autoeratic and the democratic. One concept of how best to reach all our fellow citizens effectively with the life-lengthening, life-broadening and life-brightening message of modern hygiene is to prod them into routine utilization of its teachings; the other concept is to lead them to it, but to lead them faster than has ever been done before in the world's history."

MEASLES.

The Bulletin of the Chicago School of Sanitary Instruction, published by the Department of Health, issues a warning regarding the complacent way in which measles is being looked upon.

In the year 1920 nearly 10,000 children died of measles in this country. In 1921 120 deaths occurred in Chicago, and for the first ten months of this year 133 succumbed. Measles is distributed over the entire inhabitable globe from Iceland to Tierra del Fuego; when the Fiji Islands were invaded it was estimated that 20,000 deaths occurred in four months. In 1917 three states had a death rate of over 40 per hundred thousand from measles, and several of the large cities had even a higher rate.

News Notes.

PUBLICITY IN ILLINOIS.—The officers of Illinois State Medical Society have sent a letter to every physician in Illinois soliciting funds for the purpose of carrying on a lay publicity campaign through the newspapers of the state.

AWARD OF THE KNAPP MEDAL.—At the meeting of the Ophthalmic Section of the American Medical Association, Dr. Frederick H. Verhoeff, of Boston, was awarded the Knapp Medal for his paper on "Ghoinas of the Optic Nerve." Dr. Verhoeff is president of the New England Ophthalmological Society.

DR. F. W. PEABODY, of Boston, professor of medicine at the Medical School of Harvard University, and physician-in-chief of the Boston City Hospital, has been elected a member of the Council on Pharmacy and Chemistry to fill the vacancy caused by the resignation of Dr. C. L. Alsberg, formerly chief of the Bureau of Chemistry, Department of Agriculture, and now director of the Food Research Institute of Stanford University.

DEATH RATE IN BOSTON.—During the week ending December 16, 1922, the number of deaths reported was 238, against 199 last year, with a rate of 16.25. There were 35 deaths under one year of age, against 24 last year. The number of cases of principal reportable diseases were: Diphtheria, 76; scarlet fever, 61; measles, 62; whooping cough, 90; typhoid fever, 2; tuberculosis, 31. Included in the above were the following cases of non-residents: Diphtheria, 9; scarlet fever, 11; measles, 1; whooping cough, 2; typhoid fever, 1; tuberculosis, 4. Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 2; measles, 3; whooping cough, 4; tuberculosis, 15. Included in the above, were the following cases of non-residents: Diphtheria, 1; scarlet fever, 1; tuberculosis, 4.

BROOKLINE BOARD OF HEALTH BULLETIN.—This publication for December, in addition to the usual warnings about disease and advice regarding health rules, has a timely article on "Christmas Candy." The argument is submitted that since sugar alone only provides heat and energy and that other foods furnish these essentials, that the effect of candy is more likely to disturb digestion than to provide needed nourishment.

Further, that sweets can be eaten to much better advantage as found in fruits, and the claim is made that dates, figs and raisins are the most wholesome form of sweets for children.

Another article on school lunches presents a rational dietary for children.

THE HEALTH ADVISORY COMMITTEE OF THE RED CROSS.—This committee consists of Surgeon-General H. S. Cumming, Dr. George M. Piersol, Prof. C. E. A. Winslow, Dr. Livingston Farrand, Dr. John H. J. Up'lam, Douglas Griensener, Dr. Franklin Martin, Dr. William H. Welch and Dr. Herman M. Biggs. A meeting was held at headquarters this month for the purpose of formulating suggestions relating to health activities of the Red Cross.

MASSACHUSETTS GENERAL HOSPITAL.—A clinical meeting of the Out-Patient Staff was held in the Lower Out-Patient Amphitheatre Wednesday, December 20, 1922, at 12 noon.

Subjects discussed: Arthritis, Dr. R. B. Osgood; Arthritis, Dr. L. T. Swaim.

THE SECRETARY OF THE MASSACHUSETTS MEDICAL SOCIETY, Dr. Burrage, has moved to 182 Walnut Street, Brookline, near Village Square. To reach him telephone Brookline 0860 or take any electric car passing through Village Square, i.e., Boston & Worcester, Cypress Street, Chestnut Hill, Washington Street or Harvard Street.

Walnut Path, the first stop on Boylston Street, after Village Square, is opposite his house.

DR. HUBERT WORK'S SUGGESTION.—Dr. Work, retiring president of the A. M. A., has recommended dividing the Medical Profession in the United States into district medical organizations. At a banquet of the officers of the State Medical Societies comprising the Southern Medical Association this plan was opposed in the form of a series of resolutions.

DR. HOWARD A. KELLY'S EXPERIENCE WITH A SNAKE.—Last March Dr. Kelly was collecting snakes in Florida and was bitten on the end of an index finger by a cotton mouth moccasin about thirty inches long. Thinking that the snake had exhausted its supply of venom by biting itself three times, Dr. Kelly did not consider it necessary to make use of permanganate of potassium. He did not even place a ligature about the finger. Although the finger and hand became very swollen and there were enlarged axillary glands there was no constitutional disturbance. After the bite free hemorrhage occurred. The recovery of the finger was slightly incomplete after seven and a half months. The details of this experience are given in an article written by Dr. Kelly, which appeared in the *Therapeutic Gazette* under date of December 15, 1922.

WORCESTER DISTRICT MEDICAL SOCIETY.—The regular meeting of the Society was held at the G. A. R. Hall in Worcester, Dec. 13, 1922, at 4:15 P.M.

Dr. Walter D. Bierberbach of Worcester read an interesting paper on Kidney malformations and reported an interesting case of a unilateral fused kidney that had come under his observation. Dr. Philip H. Cook showed slides illustrating the value of Pyelography in the study of kidney malformations.

Dr. J. Dellinger Barney read a paper on the Operability of Prostatic Obstruction and discussed the problems as met in a large series of cases. Dr. Trowbridge showed a badly infected kidney which he had removed, with photographs of a large number of stones which were found in the kidney.

Dr. O. Draper Phelps in discussing the papers emphasized the value of drainage and said that in his experience the best anesthetic was gas oxygen. At the business meeting Dr. R. J. Shannahan, chairman of the committee appointed at the September meeting to consider the advisability of the society adopting the American Medical Association's Caduceus for the automobiles of the members, to take the place of the green cross that is now used by so many cults, reported that he had received 130 replies to requests for an expression of opinion as to the advisability of such action in favor of the adoption and four in the negative.

It was then voted to adopt the Caduceus and Dr. R. J. Ward was instructed to arrange to secure the emblems in quantity. The price will be \$1.20 if not less than 100 are ordered. All the members who wish to order them will please send their check for \$1.20 to Dr. Roy J. Ward at once, that the order may be placed as soon as possible. It was voted to pay the bills of the open meeting on cancer, amounting to sixty-three dollars.

DRS. G. N. COBB and M. M. JORDAN have announced the removal of their offices to 21 High Street, Worcester, Mass.

THE GRADUATING EXERCISES of the January and April classes of Worcester City Hospital Training School for Nurses were held Friday evening, Dec. 15, 1922. The January class consisted of Dorothy A. Freeman, Harriet E. Small, Elizabeth Corkum, Hazel M. Palmer, and Elizabeth M. Sheahan. The April class consisted of Mary E. Moore, Katherine J. Quirk, Mildred A. Stevens, Mary E. Garrity, Agnes M. Curley, Earl C. Marling, John F. Brazzill, Joseph G. Gaylord, Thomas A. Balboni, and Peter W. Babbitt.

CENTENARY OF LOUIS PASTEUR.—A meeting to commemorate the centenary of Louis Pasteur was held under the auspices of Columbia University Monday, December 18, in Havemeyer Hall, New York City. Speakers: Emmanuel de Margerie, D. ès S., of the University of Strasburg; subject, France's Estimate of Pas-

teur. Gary N. Calkins, Ph.D., Professor of Protozoology; subject, The Debt of Biology to Pasteur. Frederic S. Lee, Ph.D., L.L.D., Research Professor of Physiology; subject, The Debt of Medicine to Pasteur.

INSULIN IN DIABETES MELLITUS.—At a meeting conducted by the New York Academy of Medicine on Dec. 21, 1922, Dr. F. G. Banting of the University of Toronto read a paper on Pancreatic Extract in Diabetes Mellitus. The paper was discussed by Frederick M. Allen, Henry R. Geyelin and Nellis B. Foster.

THE OPENING OF THE NEW BOSTON LYING-IN HOSPITAL.—The trustees, the medical staff and the Board of Lady Visitors of the Boston Lying-in Hospital issued invitations for the opening of the new hospital, 221 Longwood Avenue, corner of Avenue Louis Pasteur, on Wednesday, December the 27th, from 3 until 6 o'clock.

UNWELCOME GUESTS.—Chicago is trying to stir up interest in a rat-exterminating campaign, finding herself unwilling to play host any longer to a large house party which costs millions of dollars every year. Other cities are ridding themselves of these expensive pests, notably Boston, which has recently increased her rat-catching force.

DRY SWEEPING PROHIBITED.—New York has added a new regulation to her sanitary code prohibiting dry sweeping in any place or room where food or drink is prepared, cooked, mixed, baked, exposed, bottled, packed, handled, stored, manufactured, offered for sale, or sold.

BREAST FEEDING VS. BOTTLE FEEDING.—The Bulletin of the Chicago Department of Health points out that artificial feeding as practiced in typical city populations, among all classes, nationalities, and earnings groups, is attended by a mortality from three to four times as high as the mortality among breast-fed infants.

This situation lends itself ideally to correction by the practicing physician.

MEETING OF THE ESSEX SOUTH DISTRICT SOCIETY.

The Essex South District Society of the Massachusetts Medical Society held their regular meeting at the Beverly Hospital, Wednesday, December 13.

From six to seven there was inspection of the hospital followed by this program of short talks and demonstrations given by members of the staff:

6:00 and 6:15—Pathological Laboratory. (a) Easy Method of Staining Diphtheria Smear for quick Diagnosis. (b) The Importance of Differential White Count. Dr. Clifton Buck, Medical Staff, Beverly Hospital.

6:00 and 6:15—Doctors' Library. Middle Ear Disease and Mastoiditis in Malnutrition. Dr. Thomas Odeneal, Otolologist, Laryngologist and Ophthalmologist to Beverly Hospital.

6:30 and 6:45—Doctors' Library. Showing of cases. Dr. P. P. Pohnson, Surgeon in Chief, Beverly Hospital. Demonstration and talk. Dr. Isobel Bogan, Roentgenologist, Beverly Hospital, showed interesting X-rays between 6:00 and 7:00. Miss Pauline Smith, Occupational Aid, Beverly Hospital, demonstrated Occupational Therapy between 6:00 and 7:00.

Dinner was served at 7:00 p. m. after which the following program was enjoyed: Dr. F. W. Baldwin, president of the Essex South Society, presiding:

Address of welcome by Mr. John L. Saltonstall, president of the Board of Directors of the Hospital.

Address by Dr. John W. Bartol, president of the Massachusetts Medical Society.

Address by Dr. Walter Bowers, Managing Editor of the BOSTON MEDICAL AND SURGICAL JOURNAL.

A paper by Dr. Peer P. Johnson, Surgeon in Chief of the Hospital, entitled "Diagnosis of Gall-Bladder Disease." The points brought out in his paper were illustrated by showing of cases.

Dr. J. D. Adams, Boston, visiting Orthopedist of the Beverly Hospital, spoke on backache and other orthopedic problems.

About one hundred members were present. The following towns were represented: Boston, Lynn, Swampscott, Cliftondale, Salem, Beverly, Hamilton, Ipswich, Manchester, Danvers, Middleton, Hathorne and Essex.

The following local men hold these offices in the Society: President, Dr. F. W. Baldwin; Vice-President, Dr. J. A. Shatswell; Secretary, Dr. R. E. Stone; Councilors, Dr. P. P. Johnson and Dr. G. M. Cline.

—R. E. Stone, M.D., *Secretary*.

WILLIAM THOMPSON SEDGWICK MEMORIAL LECTURESHIP.

For the purpose of commemorating the services of William Thompson Sedgwick to the cause of Biology and Public Health there has been established a Memorial Lectureship in the department of the Institute of Technology which he created. The desire of the founders is that the Sedgwick Memorial Lectures shall be given from year to year by men of distinguished eminence in any one of the subjects comprehended within the general scope of Biology and Public Health in order that it may fittingly express the deep and broad sympathy of the man whom the Lectureship is designed to honor.

The committee in charge of the Lectureship

consists of: Samuel C. Prescott, Massachusetts Institute of Technology; Edwin O. Jordan, University of Chicago; George C. Whipple, Harvard University; Gary N. Calkins, Columbia University; Charles E. A. Winslow, Yale University.

The first William Thompson Sedgwick Memorial Lecture will be given in Huntington Hall, 491 Boylston Street, Boston, Mass., on Friday, December 29, at 5 o'clock, by Edmund Beecher Wilson, Ph.D., Sc.D., LL.D., M.D., Da Costa Professor of Zoology, Columbia University, on The Physical Basis of Life.

The public is cordially invited to attend.

MENTAL HYGIENE.

The Monthly Bulletin of the Massachusetts Society for Mental Hygiene for December reports that The Connecticut Valley Committee in Springfield has arranged an instruction or lecture course on "The Mental Hygiene of the School Child," which will consist of seven weekly lectures, to be given at the Springfield Academy of Medicine. The first of this series will commence on Wednesday, January 3.

"THE MENTAL HYGIENE OF THE SCHOOL CHILD."

Wednesday, January 3.—"What Is Mental Hygiene and Why Does It Concern Every One?" Dr. George K. Pratt, Medical Director, Massachusetts Society for Mental Hygiene, Boston.

Wednesday, January 10.—"Conduct Disorders in Children of the Pre-School Age." Dr. Douglas A. Thom, Director, State Division of Mental Hygiene; Chief of the Boston Habit Clinic.

Wednesday, January 17.—"Nervousness and Nervous Breakdowns in School Children." Dr. Abraham Myerson, Assistant Professor of Neurology, Tufts Medical School, and Consulting Neurologist of the Psychopathic Hospital, Boston.

Tuesday, January 23.—"The Backward Child." Dr. George E. McPherson, Superintendent, Belchertown State School for the Feeble-minded, Belchertown, Mass.

Tuesday, January 30.—"The Delinquent Child." Dr. Augusta Bronner, The Judge Baker Foundation, Boston.

Tuesday, February 6.—"The Mental Health of the High School Student." Dr. A. Warren Stearns, Assistant Professor of Neurology, Tufts Medical School, and Physician of Nervous and Mental Diseases, Boston Dispensary.

Wednesday, February 14.—"Education and Mental Hygiene." Dr. William H. Burnham, Professor of Pedagogy, Clark University.

The course tickets are obtainable from Miss Marjorie R. Latimer at Central High School,

Springfield, and will cost \$2.50. Single lecture tickets are 75 cents each.

A "Mental Health Week" was conducted in Fitchburg, to stimulate public interest in the establishment of a local branch of the Society and to focus attention on the new clinic secured for that place.

Speakers furnished by the Mental Hygiene Society addressed various civic organizations in Fitchburg, such as the Rotary Club, Chamber of Commerce, the Women's Club, the Community League, and others on popular mental health topics. Some of the clergymen volunteered to make this subject the topic of a Sunday sermon, and generous press publicity was secured.

The concluding event of this "week" was a large public meeting on the evening of Friday, December 15th, at Wallace Auditorium. At this meeting the local branch organization was launched and announcement made of improved clinical service to care for early cases of mental disorder occurring either in children or adults.

This clinic was made possible through the coöperation and interest of Dr. Charles E. Thompson, Superintendent of the Gardner State Hospital and the new State Division of Mental Hygiene under Dr. Douglas A. Thom. Arrangements have been completed to have this clinic, which will be held regularly once a week, provide service not only to Fitchburg, but to the surrounding district as well. The clinic team will consist of a physician, a psychologist, and a social worker, all from the Gardner State Hospital.

CLINIC AT THE CHILDREN'S HOSPITAL.

The first Staff Clinic of the season was held at the Boston Children's Hospital on Friday afternoon, December 8th. Dr. Ober showed two cases, one of acute infectious arthritis of the hip, drained posteriorly with good function; the other a case of tuberculosis of the pubic bone extending outward to the hip. Dr. Anderson showed the x-rays of two babies each with diaphragmatic hernia. He spoke of the gurgling of gas in the bowel as the sign upon which the diagnosis was made in one case before the x-ray was taken.

Dr. Hill showed a child with purpura hemorrhagica on whom five transfusions had been done. The lack of blood platelets is supplied thereby but unfortunately the life of the platelets is only a few days.

Dr. Schloss showed very strikingly by x-ray plates the rapid deposit of calcium at the epiphyseal line as a result of the administration of cod-liver oil and exposure to ultra-violet light.

Dr. Osgood emphasized the great importance of safeguarding our milk supply to prevent

surgical tuberculosis in children. He spoke of the great frequency of tuberculous bone and joint disease in Edinburgh, where no attention was paid to bovine tuberculosis.

Dr. Cutler and Dr. Crothers showed a child with abscess of the frontal lobe of the brain, secondary to an injury received about six months before. The condition had been mistaken for anterior poliomyelitis and for tuberculous meningitis.

Dr. Stone showed a girl with bilateral hare lip but with a very small intermaxillary bone and with a flat nose due to defect of the nasal septum. The case resembled the so-called median hare lip.

Dr. Liebman spoke of the almost specific influence of the x-ray in the treatment of keloid but advised excision followed by x-ray exposures in the treatment of the extremely large keloid of the neck which he showed.

Dr. Mixer showed a case of retro-pharyngeal glandular tuberculosis associated with tuberculosis of the cervical lymph nodes. The retro-pharyngeal abscess was drained by opening the external abscess with which it communicated through a small opening.

The clinics are held at the Children's Hospital once a month, on Friday afternoons at 4.30. All physicians are invited. The dates of future clinics are January 12, February 9, March 9, April 13, May 11.

THE MEETINGS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Attention was called to the meetings of this Association last week.

The meeting on the afternoon of Friday of this week is of special interest to physicians and it is hoped that there will be a large attendance.

The speakers are Dr. R. P. Strong of Harvard University, Dr. A. B. Macallum of McGill University, Dr. C. T. Brues of the Bussey Institute, Harvard University, Dr. L. O. Howard of the United States Bureau of Entomology, Dr. C. W. Stiles of the United States Public Health Service and Dr. C. A. Kofoed of the University of California.

Miscellany.

RÉSUMÉ OF COMMUNICABLE DISEASES, NOVEMBER, 1922.

GENERAL PREVALENCE.

The more prevalent diseases showing an increase over the previous month are as follows: chicken-pox, diphtheria, measles, mumps, pneumonia (lobar), scarlet fever, whooping cough.

	Nov.	Oct.	Nov.
	1922	1922	1921
Chicken-pox	664	199	646
Diphtheria	1263	1021	1185
Measles	1166	686	578
Mumps	449	188	241
Pneumonia, lobar ..	445	236	353
Scarlet fever	809	554	661
Whooping cough ...	1056	634	223

RARE DISEASES.

Anterior poliomyelitis was reported from Boston, 9; Cambridge, 2; Lawrence, 1; Lexington, 1; Lynn, 3; Northampton, 1; Orleans, 1; Somerville, 1; Waltham, 1; Woburn, 1; total, 21.

Anthrax was reported from Peabody, 1.

Dog-bite requiring anti-rabies treatment was reported from Boston, 1; Chelsea, 6; Lowell, 4; Salem, 6; total, 17.

Encephalitis lethargica was reported from Boston, 1; Everett, 1; Lawrence, 1; Lynn, 1; Malden, 1; Marlboro, 1; Peabody, 1; Quincy, 1; Salem, 1; W. Bridgewater, 1; total, 10.

Epidemic cerebrospinal meningitis was reported from Adams, 1; Boston, 7; E. Bridgewater, 1; Fall River, 2; Gardner, 1; Melrose, 1; New Bedford, 1; Springfield, 1; total, 15.

Hookworm was reported from Boston, 4.

Malaria was reported from Boston, 1; Douglas, 1; Walpole, 1; total, 3.

Pellagra was reported from Boston, 1.

Rabies was reported from Boston, 1; Medford, 1; total, 2.

Septic sore throat was reported from Arlington, 1; Boston, 3; Cambridge, 1; Fall River, 1; New Bedford, 1; total, 7.

Smallpox was reported from Hadley, 1.

Tetanus was reported from Lynn, 1; Worcester, 1; total, 2.

Trachoma was reported from Boston, 11; Lynn, 1; Plymouth, 1; total, 13.

Trichinosis was reported from Holyoke, 1.

Obituary.

HERBERT CLARK EMERSON, M. D.

Death has claimed Dr. Herbert C. Emerson of Springfield, president of the Springfield Hospital, bacteriologist and chemist. He died December 6, 1922, after an illness of a few weeks.

The son of Moses Emerson, of the Home Fire Insurance Co., of Boston, he was born in Claremont, N. H., December 19, 1865. He was prepared for college at Phillips Andover Academy, graduated at Amherst in 1889, and at Harvard Medical School in 1893. After serving as house officer at Boston City Hospital and Boston Lying-in Hospital he became second assistant physician at the New Hampshire Asylum for the Insane. Then he went abroad and studied pathology and bacteriology, chiefly in Berlin.

He settled in Springfield in 1897 and began health work for the city two years later, holding the positions of member of the Board of Health, city physician and analytical and consulting chemist. The reorganization of the city health department, subsequent to 1901, was largely due to Dr. Emerson's labors. He started a health laboratory. He also devoted much time to the Springfield Hospital, acting as bacteriologist, establishing a first-class laboratory and enlarging the activities of the hospital.

During the war Dr. Emerson served as fuel administrator for Springfield on appointment by J. J. Storrow, administrator for the State.

He was a member of the Country Club of Springfield; George Washington Chapter, Sons of American Revolution; the Century Club, the Colony Club, the Springfield Academy of Medicine, the American Medical Association and the Massachusetts Medical Society. He was also a member of the Engineering Society of Western Massachusetts.

Dr. Emerson leaves a widow, who was formerly Louise B. Whitcomb, and a son, Richards Haskell Emerson, a senior at Harvard.

RECENT DEATH.

DR. JOHN MARTIN MALONEY died of pneumonia after an illness of a few days at his home in Springfield, December 17, 1922, at the age of thirty-seven.

He was born in Springfield in 1885, had his education in the public schools and his M.D. from the University of Georgetown, Washington, D. C., in 1907. Settling in his native city, he was an interne at the Mercy Hospital and then began a general practice.

He was a member of the Hampden District Medical Society, American Legion, Knights of Columbus and Springfield Lodge, B. P. O. E.

He is survived by a widow and two young children.

Correspondence.

JUDGE BAKER FOUNDATION.

40 COURT STREET (SCOLLAY SQUARE), ROOM 1214.
President, Frederick P. Cabot; directors, William Healy, M.D., Augusta F. Bronner, Ph.D.; treasurer, Charles L. DeNormandie; trustees, Miss Edith N. Burleigh, Judge Frederick P. Cabot, Roy M. Cushman (Secretary), Charles L. DeNormandie, Dr. Walter E. Fernald, Mrs. Jessie D. Hodder, Judge Frank Leveroni, Herbert C. Parsons, Judge Philip Rubenstein.

Boston, December 14, 1922.

Mr. Editor:

I am sending you under another cover some sample copies of the case studies which we are getting out under a grant from the Commonwealth Fund. I wonder if you would be good enough to review these, or have someone else review them, in the MEDICAL AND SURGICAL JOURNAL. We are naturally anxious to have these case studies brought to the attention of those to whom they will be of the most value. I am enclosing herewith our circular letter sent out in June, which gives in detail the plan of the series. Seven studies have already been issued, and three more are

in press. The studies, as you will note, are issued periodically, approximately two each month.

Yours very truly,

WILLIAM HEALY.

My dear Sir:

The Judge Baker Foundation has just completed five years of work. During this period there have been scientifically studied 2800 cases, many intensively, and all have been followed up. The majority have come from the Boston Juvenile Court, the remainder from a variety of sources—child welfare agencies, school people, parents, etc. The problems presented have covered not only delinquency, but also questions of education, vocation, and minor behavior difficulties.

Because of the range of problems and because of our unusually favorable opportunity for study and observation of the results of treatment, we have been able to collect a vast amount of data which we think will be of great interest to students of education in general, as well as to those interested in delinquency.

Through a gift from the Commonwealth Fund of New York, it is now possible for us to publish some of our case material. We plan, between September and June, to publish twenty actually studied cases, followed over a period of years. This series will represent varied individual differences, such as those pertaining to physical and mental make-up, the latter particularly considering matters of special peculiarities and capacities, the specific delinquency involved, the type of treatment given, and many other points.

Each study will consist of a pamphlet. For the case presentation we have evolved a new form in the hope that it will not only make the case material clearer and more interesting, but also that it will prove most valuable in its adaptation for teaching purposes; it is to be printed on the left hand page, with the discussion on the right hand page. For class work the study will be issued in loose-leaf form, in order that the student may receive only the case material. He may make his own interpretations either on the opposite blank page or on interleaving paper, and later receive the printed discussion for comparison. Follow-up facts may similarly be withheld. For other readers the entire material is intact.

The price will be \$2.50 for the series of twenty. (Rate for orders of 10 or more series is \$2.00 for each series.) The price is made possible by our gift from the Commonwealth Fund. If you wish to subscribe to the series, will you kindly let us know on the enclosed blank form very soon?

We shall be very glad to send further information if you desire it.

Very sincerely yours,

WILLIAM HEALY.

AUGUSTA F. BRONNER.

[NOTE: The JOURNAL will publish a series of the case studies as submitted.]

TEST FOR PERFORATING GASTRIC ULCER.

December 13, 1922.

Mr. Editor:

Some months ago, after doing an operation in an emergency, for what we thought was an acute appendix, finding a perforation of the stomach, I wondered if any simple procedure would aid diagnosis in an obscure case like the above. As I have reason to believe it has never been used, would suggest, in obscure cases, immediately of the making small incision, the use of sterile litmus paper, and see if you get an acid reaction. If such were the case your diagnosis ought not to be hard to make. Trust-

ing that this suggestion may occasionally be of use to my professional brothers, I am

Very truly yours,

F. P. HUDNUT, M.D.

New Bedford, Mass.

In searching for information the following letter was received:

Dr. F. P. HUDNUT,

New Bedford, Mass.

A thorough search of various indexes, journals and textbooks has failed to reveal any reference to the use of litmus paper as a means of diagnosing perforation of the stomach. Most pathologists depend on signs of exudation and secondary inflammation to make the diagnosis.

Very likely the use of litmus paper would show the presence of acid. However, it does not seem safe to depend on such a reaction for the diagnosis of gastric perforation.

Very truly yours,

JOURNAL AMERICAN MEDICAL ASSOCIATION.

PASTEUR INSTITUTE SCHOLARSHIPS.

December 15, 1922.

Mr. Editor:

The enclosed, from Mrs. Bellamy Storer, may be of interest to the JOURNAL readers.

Sincerely,

MALCOLM STORER.

302 Beacon Street, Boston.

A society has been founded in Paris to promote the studies of young scientists at the Pasteur Institute, by establishing scholarships to be given to French students whose means do not permit them to defray the expenses of a two years' supplementary scientific course at the Institute. Dr. Calmette is anxious to receive also at the Pasteur Institute students from foreign countries and especially from the United States. He asks if the medical and scientific schools of America would establish scholarships, to enable students to attend the courses at the Pasteur Institute during two years. These courses include micro-biology, sero-therapeutics and their practical application, also the study of the uses of radium. These students will also be allowed to follow, at the Pasteur Hospital, the most scientific treatment of contagious diseases and also the treatment of cancer by radium. The Paris committee will personally welcome the foreign students, and assist them to establish themselves. For all information please address the Marquise de Chambrun, 19 Avenue Rapp, Paris. The regular courses at the Pasteur Institute begin in January. The men connected with the Institute at present are of the highest standing in their profession. One of them is the grandson of Pasteur, Dr. Pasteur Vallery-Radot, who at the early age of thirty-six is in the first rank of the medical profession of Paris.

As to the cost of these scholarships, it is estimated that 12,000 francs a year will cover all expenses, including the courses at the Institute; at the present rate of exchange this would be about \$1000, or \$2000 for a two years' scholarship.

The centenary of Pasteur seems a fitting time to inaugurate this international association of scientific students.

WALTER REED GENERAL HOSPITAL.

Washington, D. C.

A second course in Physio Therapy will be given at Walter Reed General Hospital, Washington, D. C., beginning February 27, 1923, and extending for a period of four months. It is open to women who have had at least a two-year training in an approved school of physical education. For further informa-

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Major, M. C., U. S. Army,
Director of Physio Therapy.

UNITED STATES CIVIL SERVICE EXAMINATION.

JUNIOR PATHOLOGICAL TECHNICIAN.

The United States Civil Service Commission announces an open competitive examination for junior pathological technician, the receipt of applications to close January 16, 1923. A vacancy in the Army Medical Museum, War Department, Washington, D. C., at \$1800 a year (plus "bonus"), and vacancies in positions requiring similar qualifications, at this or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE.

Examination Held November 14, 15, 16, 1922.

Applicants examined.....	53
Applicants registered.....	26
Applicants rejected.....	27

Detail of colleges of graduation, as follows:

Middlesex College of Medicine and Surgery.....	12
St. Louis College of Physicians and Surgeons....	7
Massachusetts College of Osteopathy.....	5
College of Physicians and Surgeons, Boston.....	4
Harvard Medical School.....	3
Tufts College Medical School.....	2
Johns Hopkins Medical School.....	2
McGill University.....	2
Washington University, St. Louis.....	1
University of Naples.....	1
Kansas City University.....	1
College of Physicians and Surgeons, Baltimore..	1
University of Michigan.....	1
University of Dorpat.....	1
University and Bellevue Hospital.....	1
Chicago Medical School.....	1
University of Illinois.....	1
Yale Medical School.....	1
Woman's Medical College of Pennsylvania.....	1
University of Vermont.....	1
Jefferson Medical College.....	1
Georgetown University.....	1
College of Physicians and Surgeons of Columbia College	1
State University of Iowa.....	1
Total	53

The college of graduation of rejected applicants is as follows:

Middlesex College of Medicine and Surgery.....	7
St. Louis College of Physicians and Surgeons....	7
Massachusetts College of Osteopathy.....	4
College of Physicians and Surgeons, Boston.....	3
Tufts College Medical School.....	1
University of Naples.....	1
Kansas City University.....	1
College of Physicians and Surgeons, Baltimore..	1
University of Dorpat.....	1
McGill University.....	1
Total	27

APPLICANTS REGISTERED BY THE BOARD OF REGISTRATION
IN MEDICINE, NOVEMBER EXAMINATION, 1922.

Argy, William Philip, Jr., Gallinger Municipal Hospital, Washington, D. C.
Arne, James Alexander, 521 Massachusetts Avenue, Boston, Mass.
Beals, Charles Wearne, Danvers State Hospital, Hallowell, Mass.
Bixby, Harry Irving, 538 Prospect Street, Fall River, Mass.
Burns, Patrick Stephen, 30 Candance Street, Providence, R. I.
Carruthers, Arthur Peché, 725 Cambridge Street, Cambridge, Mass.
Clay, Charles Lancaster, Lawrence General Hospital, Lawrence, Mass.
Cohen, Louis Morris, St. Francis Hospital, Pittsburgh, Pa.
Darling, Taber Manson, 28 Randolph Street, North Abington, Mass.
Davidson, Percy Barnard, Boston City Hospital, Boston, Mass.
Fisher, David, National Military Hospital, Danville, Ill.
Garton, Will Melville, United States Navy Yard, Boston, Mass.
Gross, Joseph Edward, 740 Dyer Avenue, Cranston, R. I.
Grossman, Samuel, 6 First Street, Taunton, Mass.
Hilbach, Robert McCully, Pathological Laboratory, Boston City Hospital, Boston, Mass.
Hjort, Axel Magnus, 195 Audubon Road (Apartment 43), Boston, Mass.
Hoag, Lynne Arthur, 4085 Washington Street, Roslindale, Mass.
Hobericht, Carl Albert, 35 Colonial Avenue, Dorchester, Mass.
Malמוד, William, Foxboro State Hospital, Foxboro, Mass.
Rapport, Charles Harold, 270 Chestnut Street, Chelsea, Mass.
Rivero, Amancio Justo, care Y. M. C. A., Boston, Mass.
Royal, Harold Orison Fowler, Alberta Apartments (Suite 21), 24 Westland Avenue, Boston, Mass.
Shaw, Henry Alden, Psychopathic Hospital, Boston, Mass.
Spector, Benjamin, 416 Huntington Avenue, Boston, Mass.
Warrick, Will Carleton, 104 East Street, Pittsfield, Mass.
Zeckwer, Isolda Therese, Department of Pathology, Harvard Medical School, Boston, Mass.

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Hyannis,—February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol South District:—Fall River,—May 3, 1923.

Essex North District:—Haverhill, (Semi-Annual Meeting)—January 3, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Meetings of the Suffolk District and the Boston Medical Library, at the Library:

December 27, 1922:—Surgical Meeting. "Surgical Lesions Occurring in Diabetics: Their Peculiarities and Management," Dr. Elliott P. Joslin, Boston. An account of the experience in this field of the major hospitals of Boston, by members of the staffs.

January 31, 1923:—Medical Meeting. "Epidemic Encephalitis," Dr. E. W. Taylor, Boston.

February 28, 1923:—Medical Meeting. "Colitis," Dr. Henry F. Hewes, Boston.

March 28, 1923:—Surgical Meeting. "A Review of What Surgery Can Accomplish in Diseases of the Thoracic Organs, with a Forecast of the Future," Dr. Howard Lillenthal of New York.

April 25, 1923:—Annual Meeting. Election of Officers. "The Record of the Past Twelve Years in Syphilology, with a Forecast of the Future." A series of 10-minute papers. Dr. C. Morton Smith, Boston, will preside.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District:—Meeting, Wednesday, January 31, 1923.

Middlesex East District:—Jan. 24, 1923. The Nursing Problem. Speaker to be announced later.

March 21, 1923. Mental Factors in Childhood. Paper by Dr. William Healy.

April 18, 1923. Interpretation of Laboratory Findings. Papers by Dr. E. G. Crabtree and one to be announced later.

May 9, 1923. Annual Meeting.

All meetings except the annual meeting will be held at the Harvard Club in Boston. A. E. Small, Secretary.

Worcester District Meetings are scheduled as follows:

January 10, 1923:—The meeting will be held at the Worcester State Hospital, Belmont Street, at 4.15 P.M. Programme: "A Discussion of Status Thyroideolymphaticus and the Inherent Compensatory Possibilities," Dr. Walter Timme, New York City. Discussion will be opened by Dr. W. A. Bryan.

February 14, 1923:—The meeting will be held at the Worcester City Hospital at 4.15 P.M. The programme will consist of a series of papers by members of the staff.

March 14, 1923:—The meeting will be held at St. Vincent's Hospital at 8.15 P.M. The programme will consist of a series of papers by members of the staff.

April 11, 1923:—The meeting will be held at Memorial Hospital at 8.15 P.M., and the programme will consist of a series of papers by members of the staff.

May 9, 1923:—Annual meeting and banquet.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

NEW ENGLAND PEDIATRIC SOCIETY: The following are the dates for meetings the coming season. Each meeting is on the second Friday of the month at the Boston Medical Library: January 12, February 9, March 9, April 13 and May 11.

December 28-30, 1922:—American Association for Advancement of Science meets in Boston.

January, 1923:—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston; W. H. Allen, Mansfield, Mass., Secretary.

January, 1923:—Boston Association of Cardiac Clinics. Meeting January 18, 1923, at 8.15 P.M. Boston Lying-In Hospital (New Hospital). Subject: Pregnancy and Heart Disease.

January, 1923:—Boston Medical History Club will meet January 15, 1923.

February, 1923:—New England Dermatological Society Meeting, February 14, 1923, at 3.30 P.M., in the Skin Out-Patient Department, Massachusetts General Hospital; C. Guy Lane, Secretary.

February, 1923:—Boston Medical History Club will meet the third Monday of this month.

March, 1923:—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary.

March, 1923:—Boston Association of Cardiac Clinics. Meeting March 15, 1923, at 8.15 P.M. Boston City Hospital. Subject: Prevention and Relief of Heart Failure.

March, 1923:—Boston Medical History Club will meet the third Monday of this month.

April, 1923:—New England Dermatological Society Meeting, April 11, 1923, at 3.30 P.M., in the Surgical Amphitheatre, Boston City Hospital; C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston; W. H. Allen, Mansfield, Mass., Secretary.

April, 1923:—Boston Medical History Club will meet the third Monday of this month.

May, 1923:—Massachusetts Society of Examining Physicians (date and place undecided). American Pediatric Society Meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind.; H. C. Carpenter, Secretary.

May, 1923:—Boston Association of Cardiac Clinics. Meeting May 17, 1923, at 8.15 P.M. Children's Hospital. Subject: Rheumatism and Chorea and Heart Disease.

June, 1923:—American Medical Association, San Francisco, June 25-29, 1923; Alexander R. Craig, Chicago, Ill., Secretary.

July, 1923:—Massachusetts Association of Boards of Health, July 26, Nantasket; W. H. Allen, Mansfield, Mass., Secretary.

*Deceased September 2, 1922.

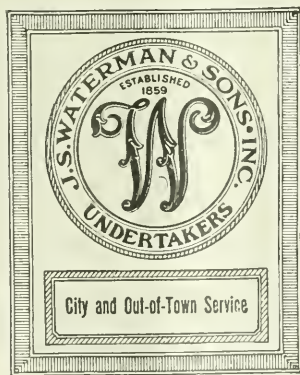
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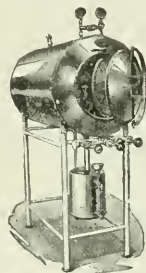
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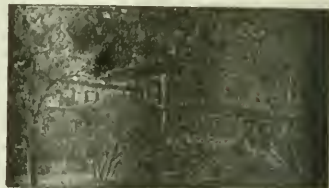
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